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Architectural Problems for Parliament.

AT an early date the members of our Legislature will be invited to give their opinions and their votes on two architectural questions of considerable importance, though of very different nature; the new building for the Admiralty and War Offices, and the so-called "restoration" of Westminster Hall. Indeed, the consideration of the first-mentioned subject was promised, or threatened (whichever way honourable members like to take it), for the actual night of re-assembling, on the 9th; but we write in the expectation that no definite decision will have been come to when these words appear. To a considerable proportion of the House of Commons as at present constituted we fear that such questions are no more than those of pounds, shillings, and pence; and at the time when the subject of the present site for the War Offices was first discussed in the House we took occasion to comment * on the mercantile and Philistine spirit displayed and apparently gloried in by some honourable members, one of whom did not scruple to express his "horror of artistic buildings and artistic sites." To preach to these gentlemen is, of course, useless. But among the minority who are not so enthusiastic in waving what Sir Wilfrid Lawson once called "the glorious banner of peace, retrenchment, and reform" there may be some to whom the treatment of a great building for an important public service may be something more than a mere matter of expenditure; and to such liberal-minded members of the Legislature we would address a few words of exhortation in season.

Our first text in regard to the War Offices is one on which we have preached over and over again to deaf ears, and on the main point of which it has for some time back been too late to preach. That is, the question of site. A magnificent site for concentration of the whole Government Offices about the Great George-street and Parliament-street neighbourhood might once have been had at no exorbitant rate; but it was neglected till it became, or was thought to have become, too expensive to purchase as a whole, though in the meantime it had been nibbled at by piecemeal purchases to the extent of sinking a good deal of money in property which by itself was of no use for any great improvement scheme. That is an old story now, and we presume it is useless to revive it, and that the vicinity of Spring-gardens must now be taken as the accepted site for the War and Admiralty Offices. But it is at least possible to avoid making an absolute and deplorable mistake with that site; and yet this will be done unless the Government pause before it is too late, and unless those who have some sense of the value of dignified architectural *emplacement* will exert themselves to stop the vote for the new building until a re-adjustment of the site, and, as far as necessary, of the plan of the building has been obtained.

The particular defect in the manner of arranging the site which we pointed out and protested against from the first lies in the false economy of neglecting to acquire the two banks, Drummond's and Biddulph's, and the buildings between them facing Charing-cross, and sending this portion of the new building skulking behind them, thus throwing away all chance of producing a grand and dignified façade towards Whitehall. The detachment of a small block or wing of the new plan running southward to meet the Horse Guards we do not object to; it offers a means of connecting the new building with the old one; which, however, has hardly been made the most of in the accepted design. But the cutting up of the northern end of the site, in order to leave the two banks and their surroundings intact, is a fatal mistake. We pointed out that it would prove so as soon as the Government plan of the site was published. Non-professional readers, of course, do not always understand or realise what the effect of such a feature in a building site will be until they see the building on it. But the new perspective views of the revised form of the design which have been got out, and which we published last week, seem as if specially prepared to give to the lay mind absolute and obvious proof of the validity of our objection. We know not whether the particular point of view selected for the drawing of the Whitehall front was chosen by the architects themselves, or directed by the Office of Works; but it could not have been more significant if it had been made on purpose to support our views. Copies of these drawings will be in the hands of members of Parliament, and we ask those who will have to vote upon the subject, before they do so, to look at that Whitehall view,—at the mean and incongruous effect produced by the irregular collection of buildings left in the north-east angle of the site, and the new building turned round into their rear, and we ask again, as we asked last week (and we are glad to see that our question has found an echo in the pages of many of our daily contemporaries) "whether that is a worthy way for a great and wealthy nation to carry out a building of the first importance for the palace of its military and naval administration?"

"Great and wealthy." The latter adjective is still true, though one would hardly think it sometimes, to see the cheeseparing way in which we potter about great works of architecture, civil and naval. But is it possible that the first one is ceasing to be applicable to us as a nation? Indifference to great public works, which might be part of the glory of a nation,—which have been regarded as such by nations of the highest intelligence and aspiration,—is a bad sign. "Architecture," said Sir Henry Wotton, in words which have long stood as a text on our title-page, "can never want commendation where there are noble men and noble minds." Is it not a sign that such men and such minds are becoming scarcer and of less influence among us, when we find such an unwillingness to do any good architectural work in a manner worthy of a great nation? In another column we have occasion this week to comment on the noble liberality with which the small kingdom of Belgium has carried out its Palais de Justice, giving to the world a building faulty indeed in detail, but marked by the impress of genius and by the sumptuous liberality which disdains to carry out such work in a paltry and cheeseparing fashion. Surely the contrast ought to shame our authorities (and our tax-payers, whose money they control) out of this paltry, mean, insignificant way of doing things, and suggest to them a more liberal policy than to spoil the largest new public building of the day by an ill-judged economy. We may add that not only will the clearing out of this north-east corner of the site give the opportunity of making a homogeneous whole of the new building, of extending a somewhat cramped plan, and of possibly making a picturesque vista into the Mall, but it will also get rid of one building which is utterly unworthy of a fine position. It is a misery to those who care about seeing fine sites worthily occupied, to notice the commonplace and uninteresting buildings which are being got all round the new sites adjoining Charing Cross; and if Drummond's Bank were disestablished, one minor architectural *fiasco* would be got rid of, at all events.

In regard to the plan of the new buildings, the quadrangle, to the unhealthiness of which objections have been raised, has now been widened, though we are still in the mind that the closed quadrangle form, for a crowded and rather lofty building in London, to be occupied most fully during the hotter part of the year, is a principle of plan bad in itself. It was suggested by the present editor of this journal some time since, in an article in a monthly periodical, that the true sanitary way of em-

* See *Builder*, May 26, 1883, p. 699.

ploying the quadrangle form would be with open angles and partially open bridges of communication, at an angle of 45 deg. with the main blocks ; and that such a scheme (which has never been tried) would prove not only good on sanitary grounds, as getting rid of the trenches of stagnant air in the angles of the courts, but susceptible of good and novel architectural effect. We repeat the suggestion as one worth considering. If the property at the north-east corner of the site is acquired, a re-modelling of the plan would be necessary as well as desirable. Whether any re-modelling of the design can be carried out is also "a question to be asked." It is useless to pretend that many persons who understand what architecture means are satisfied with it. In the main that cannot be helped now. We have, indeed, been urged, from various quarters, to press the suggestion that the whole competition should be re-opened. We have always declined to counsel any such course, for the simple reason that, after all, morality is above art, and no architectural improvement would in our eyes atone for what would amount to nothing less than a breach of faith. But it is impossible to shut one's eyes to the fact that the result of the judgment of a small and heterogeneous committee, apparently proceeding on a preconceived idea of plan, has been to cull out for us a design which is respectable no doubt, but (save in draughtsmanship) nothing more; one entirely deficient in genius, and in some points, at variance with what among the most educated class of minds are now almost self-evident propositions in regard to architectural truthfulness and significance. We need only point to that illogical array of columns which mount guard along great part of the Park Front of the design ; useless masses carrying nothing whatever, taken out of books and planted there as architectural scenery. The Romans did this sort of planted-on column business at each side of their triumphal arches, and it is illogical and unmeaning enough there, though those were essentially show constructions, but it is much more unmeaning to see it continued along a whole range of wall between the windows of offices, because the authors wanted something there and did not know what else to put. We do not mean to be unkind, but that is the plain English of the matter ; and what is the use of Ruskin having preached architectural truth for a lifetime among us, if such a sham as this is to be put up in our largest new building? That little matter will bear consideration, at all events. The cost of that bit of scenery would form a handsome subscription towards purchasing the property in the north-east angle. And why are we to have those eternal unmeaning vases along the balustrade,—a worn-out piece of *rococo* which ought to have been buried long ago? We do not care to continue the list ; but let us at least have one shot at those preposterous pots,—"a long shot, Sir Lucius, if you love us."

The other matter referred to, that of Westminster Hall, is in some respects a less important architectural question, but also a more difficult one to come to a decision about, more especially as we have no doubt a great deal of dust will be blown in the eyes of the House when the subject comes to be discussed ; not intentionally, but inevitable archæological and sentimental dust. Now we wish briefly to put to those who may vote on the subject what the matter really amounts to. The removal of the old Law Courts laid bare the west wall of Westminster Hall and the buttresses : the latter very much decayed, and in very bad condition. The wall was found to contain portions of Norman masonry,—merely masonry, nothing to call architecture. On historical grounds no old masonry, bearing the marks of the hand of the ancient workman, should be removed if it can be avoided. On the other hand, it is not a fetish to fall down and worship, as some people make it. The buttresses absolutely require repair ; the Norman wall requires preservation from the atmosphere. In the course of repairing the buttresses it would also be quite right architecturally to complete their design in a manner suitable to their style : architectural completeness and fitness demand that. It might be a reasonable and a practical, though not a necessary course, to build a low cloister between them, which would strengthen them laterally and would at the same time afford a screen to the old Norman wall aforesaid. Those who have taken up the matter have gone much further than this, however. The able archæological architect they have employed has found various traces in the remains which, with the assistant testimony of old plans and engravings, afford evidence of the existence of a double cloister and a probable battlemented parapet, between the buttresses. The actual design of these has perished ; it is only a matter of inference,—probably correct inference as far as it goes, but nothing more. Historically, they are therefore valueless when built up again ; architecturally they shoulder up the space between the buttresses, hiding the fine lines of the flying buttresses, and dwarfing the architectural surroundings by a big battlemented parapet, a form which is itself a bad and unmeaning survival from ancient military architecture. As all this "restoration" will be an expensive process, a use must be found for the rooms, and it is proposed to make them into committee-rooms, much smaller and lower than any existing committee-rooms in the House, and lighted with very small and inadequate windows, because indications of windows of that width were found on an old plan made by or for Sir Christopher Wren, showing some of the old walls and windows. It was attempted to find some use for the lower cloister as a carriage porch ; but that idea has had to be abandoned by those who suggested it. Lastly, the foundations of another building at right angles to the Hall were found,—simply the barest remains of a foundation, that was all ; and accordingly a building was to be built there, and a use found for that if possible, because there had once been one there ; and this is called a "restoration," although every trace of the original building has vanished.

Is this common sense? The question is to the point, for true architecture is a thing based on common sense. In every age when architecture has been a real living thing, people have built a thing because they wanted it *then*, and in the way they wanted it *then*, not because they had reason to think something of the sort had once been there before. The whole affair is a piece of foolish archæological trifling, utterly unworthy of the name of architecture in its true sense ; and those who may vote money for it will have wasted so much on a piece of sentimentality. They will, perhaps, be told, as they have been told before, that architectural journals usually oppose the architectural schemes of the Government. If the charge were true, which in that sweeping form it hardly can be said to be, is it not just possible that we may know something more about what architecture really means than the Chairman of the Westminster Hall Committee, or than some other previous officials who have not given special study to the subject?

But there is another point to be borne in mind in regard to this scheme for which money is asked. The great Palace at Westminster which Sir Charles Barry designed has never been completed. The erection of the proposed mean-looking building at right-angles to Westminster Hall would be a bar to the completion of Barry's design. The erection of the foolish committee-rooms between the buttresses of Westminster Hall would be doing badly what would be far better provided for whenever that design can be completed. We are told, on the authority of the Chairman of the Westminster Hall Committee, that the completion of Barry's design is a thing not to be thought of. Why, we are not told. But what are we to think of the sense of architectural fitness, dignity, and common sense on the part of people who can make all this fuss in favour of a foolish piece of sentimental restoration, and put aside, with a shrug of the shoulders, the question of the completion of the greatest national building by the greatest English architect since Wren (for Barry unquestionably was so), as a matter of no consequence in comparison with the indulgence of their own archæo ogical whim of the moment?

THE DECORATION OF THE PANTHEON AT PARIS.

BY CHARLES YRIARTE.

THE Church of Ste. Geneviève at Paris, to which we commonly give the name of the *Pantheon*, will be in future, in virtue of the pictorial and sculptural decorations which it has received, a national museum, the most complete example of the efforts made by the French artists of the close of the nineteenth century in the art of monumental decoration.

The Pantheon, for each of the successive Governments of France, has been a kind of Palladium, the possession of which they have demanded in order to imprint on it the character which has in turn distinguished them. The Monarchy, in consecrating the edifice to religious worship, would have placed Paris under the banner of Ste. Geneviève, the patron saint of the city ; the Republic, in removing the edifice from the worship of that saint, raised the standard of free thought, substituted the patriotic for the religious idea, and, opening the vaults of the temple to the shades of the heroes who had died for their country, and to the remains of those who would have honoured it, inscribed on the façade of the temple the fine inscription which we still read there :—

"Aux grands Hommes la Patrie reconnaissante."

From the year 506 there existed there a sanctuary dedicated to St. Peter and St. Paul. King Clovis, on the eve of a decisive battle, on urgent pressure from the Queen Clotilde, had consecrated himself to this worship ; and it was in the crypt of the primitive edifice that the ashes of the king long reposed. Clotilde, the friend of Ste. Geneviève, wished that the body of her protector, who had also saved Paris from the invasion of Attila, should be placed in the same crypt after death, and the ashes of the queen herself were gathered there in 545. The hill which then overlooked Paris, now the Butte de Montmartre, and then called Mount Leucotitius, acquired, in consequence of the pilgrimages of which the tomb of the saint became the pretext, the name of Mount Ste. Geneviève.

From the sixth to the sixteenth century the church passed architecturally through many phases, but it always preserved the character of a chapel for the worship of relics. It was King Louis XV. who was destined to take the initiative in the construction on that site of a temple which should be to the city of Paris what the Basilica of St. Peter is to the city of Rome.

Following a fashion in use in France since the Renaissance, and which came to us from Italy, he asked for a number of plans in competition from the leading architects of the day. The architect Soufflot presented the best scheme. In September, 1764, the king laid the first stone ; and when Soufflot died, in 1780, the triple cupola only wanted its crowning finish. The architect had kept before him as his ideal the Basilica of St. Peter at Rome, but the levelling for the site having materially reduced the height of Mount St. Geneviève above the level of the Seine, Soufflot considerably modified his first project. He died full of grief in consequence of the deficient mass of the principal buttresses necessary to sustain the cupola. Four architects,—Brébion, architect to the king, Vielle de St. Maux, Peyre, and Rondelet (this last a consummate constructor, whose technical treatise on stone-cutting is still studied in our schools),—were entrusted with the completion of the temple of Ste. Geneviève. The cupola was for a moment in danger of being compromised through the result of settlements ; with considerable effort and by works of consolidation which did not interfere with its general appearance, the architects brought the building to its final bearing and completed the work. Scarcely had the monument been completed when it passed into the hands of the Revolutionary

Government, who overturned the *culte* of Ste. Geneviève, and decreed that the temple constructed in honour of the patron saint of Paris should henceforth be consecrated to the glory of France and the religion of patriotism, under the title of the *Panthéon Français* (1791).

It is not out of place to recognise these various vicissitudes; they help to explain the plain and barren style of the actual decoration of the monument; the something indescribable of frigid and austere character, which is characteristic of the reformers of French society, great admirers of the sobriety and symmetry of the antique, wholly in favour of the re-action already provoked by the artists of the time of Louis XVI. This reaction both the Directory and the Empire tended to exaggerate to the extent of adopting no symbols in the decoration except those borrowed from classic antiquity. At less than a half-century's distance such a painting as the "Abduction of the Sabine Women," by David, excited the passionate admiration of a nation who had been previously admiring the *bergeries* of Boucher and the sentimentalities of Greuze; and the "Emile" of Rousseau became the gospel of a Society which had just been admiring the poets of the Œil de Bœuf and the *petits levers* of Versailles and Marly. In architecture the *rococo* of our pavilions and *petites maisons*, the ideal architecture of powdered "Marquises" in hoop petticoats and of gentlemen in silk with lace frillings, was succeeded by the austere outline of the Pantheon of Rome. The severe orders of Palladio, the decorations of the triglyph, the garland, and the palm-leaf, copied from the edifices of ancient Rome, constituted the whole ornamentation of a period whose object was to revive the memory of Brutus, and to establish the worship of the Goddess of Reason.

The Restoration of 1815 effaced the fine device, "Aux grands Hommes la Patrie reconnaissante," and (a circumstance not easy to forget, whatever be one's political bias) cast the remains of Voltaire and Rousseau into a sewer near the Seine. This crime was enacted at night; apparently it was a kind of reprisal for the violation of the Royal tombs at the Abbaye St. Denis by the revolutionary mob. For thirty years the Parisians and the strangers who have visited the crypt of the Pantheon have paid homage to these empty tombs; for there was no proof of this disappearance of the ashes of the two great idols of revolutionary France till 1848, when people bethought themselves of opening the sarcophagi.

An experiment in decoration was made by the Government of the Restoration. Baron Gros had the commission for the painting in the cupola, which represented the Apotheosis of Ste. Geneviève. Baron Gérard was commissioned to paint the four pendentives; these were the sole points of colour which arrested the eyes in the great edifice, in the midst of grave architectural lines and smooth grey spaces. It might be said at the time that these fine paintings made a kind of spot in the architectural *ensemble*, and almost constituted a defect of harmony, the coloured portions attaching themselves to nothing. The Revolution of July, faithful to the ideas of the first Republic, re-established the dedication "aux grands hommes," but changed nothing in the general aspect of the edifice. David d'Angers, however, sculptured the fine pediment which has been still preserved; and, as much to give life to whatever in French sculpture kept up the fine old traditions of the country, as to complete a decorative *ensemble* in harmony with the architecture, artists received commissions for grand groups, historic subjects in keeping with the spirit of the monument, groups to be placed at the entrance of the peristyle and in the interior.

In December, 1851, Napoleon III., who copied complacently the decrees of Napoleon I., and set himself the same task, to pacify and restore order, once again reconsecrated the Pantheon, from the "culte aux grands hommes" to that of Ste. Geneviève. A sufficiently curious attempt was then made, which ended in nothing; a school of religious elocution was founded in the Pantheon, now once more become a church, under the direction of the Abbè Duquesnay, who lately died Bishop of Limoges.

The architect to the Pantheon was then M. Constant Dufeux, who enjoyed a great reputation in our national art-schools, and who nevertheless had never given the measure of his ability in any monument entirely constructed under his direction. He took in hand the Pantheon, to fit it for religious service, and as the funds voted were insufficient, he conceived the idea of a provisionary decoration which has lasted to the present day. This decoration consisted in coloured woodwork, in wooden altars draped with gilt hangings, on which sculptures were executed in distemper as in theatrical decoration. The shrine which contained the relics of Ste. Geneviève over the altar specially dedicated to her is the reproduction in plaster and joinery, painted and gilt, of the admirable work which Jean Goujon carved, and the four original statues of which, in wood, figure at this moment in the "Musée de Sculpture de la Renaissance Française."

It is difficult to understand why the Third Republic, which gave itself, in these latter years, to the programme of the abolition of religious orders and the secularisation of buildings devoted to the religious life, did not continue the tradition of the Convention in closing the church of Ste. Geneviève, to make it, as before, the national Pantheon. Quite on the contrary, however, it was the Government, and the very Ministry of M. Waddington, which, under the initiative of the Director-General of Fine Arts (M. le Marquis de Chennevières), in the year 1876, accepted the responsibility of covering the walls of the building with mural paintings, for the execution of which Parliament has been asked to devote a sum exceeding a million francs.

People bowed then, as now, to the idea of developing among French artists the taste for grand monumental painting, the tradition of which is fading day by day. It is certain that with our French ideas of centralisation it is the State alone that can encourage such works, and that it is her mission to search among the annual exhibitions of painting for artists who give proofs of their disposition for decorative art, and exhibit faculties which they will know how to employ when great surfaces are confided to them. Some members of Parliament raised objections, and put the question whether, in fact, the most truly beautiful decoration of the Pantheon, that which was most appropriate to its severe style, the nobility of its lines and harmony of its proportions, was not the very immaculate whiteness of its great surfaces, the unity of tonality in monochrome which recalled the great conceptions of antiquity;* whether any painting which trenched strongly and with a blaze of colour on that harmonious purity, would not bring with it the loss of the solemn and grandiose effect produced by the architectural lines alone.

The thesis was a good one to argue upon, and there is nothing in it very repugnant to our feeling. "Rien c'est bien" is an architectural principle which may be often applied with good result; neverthless, the "Direction des Beaux-Arts," through the mouth of M. Waddington, answered by an irresistible argument: they produced the design of the architect, Soufflot, who had conceived the idea of the Pantheon, in which he had indicated, at that stage of the project, a whole *ensemble* of painted and sculptured decorations, the execution of which was to be entrusted to the leading artists of his own day. No further objection was possible, and the funds were voted.

What was the general project agreed upon? The plan of the Pantheon gives a Greek cross with a peristyle in advance of it. At the intersection of the cross, four colossal piers supported a central dome. This cupola, as already observed, had received the paintings of Baron Gros and Baron Gérard. The scheme of the Directeur des Beaux-Arts was as follows:—Each arm of the cross presents a nearly unbroken surface of the height of the columns which support the entablature; and this surface, from the level of the floor to that of the capitals, only offers two slight projections, those of the engaged half-columns forming pilasters and repeating the colonnade, and (about two-thirds the height of the columns) a slight band or string intended to break the monotony of the wall-surface. It was in the four arms of the cross that the portion to be covered with painting was found; the embayment of the high altar, the *cellæ* of the lateral altars, and the two faces of the vestibule. These would thus be united to the coloured surfaces of the pendentives, and through them with the dome decoration itself. Never could artists find a more propitious field for the exercise of their talents; but with all this, those who had before their eyes their responsibility to future ages, and the consciousness of their own littleness, began again to ask, in the face of these noble expanses of yet virgin wall-surface, if it might not be better not to intrude on their purity. The names of those who were summoned to the honourable task of decorating the Pantheon are all well known, but in mentioning them to readers beyond the limits of their own country, to readers some of whom are perhaps not very familiar with the modern schools of art on other soil, it is perhaps as well to define a little. We are not here concerned so much to discuss the merit of their works, as to give an idea of the scheme adopted by the Directeur-Général des Beaux-Arts, and to state what is the result obtained from an architectural point of view.*

* We think we have heard something like this on our side of the Channel.—ED.

THE EAST PEDIMENT OF THE PARTHENON.

THE current number of the *Nineteenth Century* contains an article of great interest, by Dr. Waldstein, on the interpretation of certain figures in the east pediment of the Parthenon. Dr. Waldstein maintains that the two figures marked L and M in the Guide-book, and usually held to be two of the Fates, are, in fact, Gaia and Thalassa,—Thalassa resting in the lap of Gaia. Dr. Waldstein supports his view with his usual eager enthusiasm and with that personal conviction that is sure to carry weight, but, equally as usual, his arguments and what he calls his demonstration lag far behind his swift and sometimes prophetic imagination. The interpretation of figure M as Thalassa is not new. As far back as 1822 Weber (before the topographical school came in at all) suggested that the reclining figure might be Thalassa leaning against Amphitrite. Weber's conjecture was a mere isolated shot, not part of a well-considered system; but we think Dr. Waldstein, who so frankly and amply acknowledges his indebtedness to Professor Brunn, might have made some mention of this earlier suggestion.

We incline ourselves to attach considerable weight, if not as yet absolutely to give in our adherence, to Dr. Waldstein's *conclusions*, but we must decline to accept the mere analogies he brings forward as demonstrations. To turn to the so-called Theseus (which Dr. Waldstein quite rightly, we think, declines to call Theseus at all), Professor Brunn calls the figure the mountain god, Olympos. Dr. Waldstein says that on sarcophagoi reliefs he has found a number of mountain gods "bearing in attitude and general type a strong resemblance to the figure from the eastern pediment." What precisely these reliefs are it would have been well if Dr. Waldstein had stated: local personifications are, of course, common enough, and a general statement like this, unless supported either by illustration or direct citation, amounts to very little. A little lower, Dr. Waldstein does cite one actual instance,—an instance already very familiar to all archæologists, *i.e.*, the mountain god in the Esquiline wall-painting representing the landing of Odysseus on the coast of the Læstrygones. About this mountain god he makes a statement which will, we think, astonish the most confiding disciple. "The immediate depend-

* To be concluded in our next.

ence of these types upon the figure in the eastern pediment of the Parthenon becomes, I venture to believe, actually demonstrable when we compare with the Parthenon figure the mountain god from the mural painting of the Esquiline." After this what Dr. Waldstein's notion of "actually demonstrable" is we are at no loss to conceive: he means, he can mean,—we think all who look at the picture and the pediment will agree,—nothing more than that there is a pleasant analogy between them, an analogy which will come in admirably when the question is demonstrated, but which does not, could not, demonstrate it. To have a personal conviction of the truth of a certain archæological attribution is one thing; to be able to demonstrate it, *i.e.*, make it a matter of necessary conviction to others, is quite another. That Dr. Waldstein has a personal conviction about the Olympos figure we do not doubt, and we even confess we are inclined to share it, but to talk of the matter as demonstrated is a grave confusion of thought, and one extremely likely to cause the ever-ready enemy of archæology to blaspheme.

So far as literature goes, Dr. Waldstein undoubtedly has the Homeric hymn on his side; but he is too good an archæologist to press very closely the comparison between literature and art. What we really want are a few substantial instances of art tradition as regards the conjunction of Gaia and Thalassa. For anything we know, Dr. Waldstein may have such instances *in petto;* all we can say is that in this article he does not produce them, and, therefore, his theory is still in the air. It is a little surprising that in a discussion of the figures of the east pediment, he does not even allude to the acute conjecture made by Mr. Murray about the so-called Iris figure. Mr. Murray does not dogmatically assert that this figure is not Iris, and must be Eileithyia; but he points to a long line of artistic vase tradition to show that it is a highly probable attribution. Eileithyia would serve Dr. Waldstein's theory as a transitional figure from the *dramatis personæ* to the cosmical setting, almost as well as Iris herself. Dr. Waldstein's conjecture is so suggestive and so brilliant that we can only regret that it is at present supported in a manner so unmethodical, and hope that he will eventually furnish us with arguments more substantial.

NOTES.

CONSIDERABLE excitement seems to have been caused by the recent discovery of a bronze statue in Rome. The statue, which is more than life-size, and in part in excellent preservation, was seen by a few immediately after its discovery, and rumour was instantly busy to give it a name and a date. It has now been removed to the somewhat jealous guardianship of Santa Francesca. In a warehouse close to the church the statue is housed for the present, and there, by the kind permission of the Director of the Excavations, Sig. Fiorelli, we were able to get a sight of it. The first view is pathetic enough. The statue lies flat on its back on some straw and matting, the uplifted left arm supported on a chair, and is the only occupant of a huge gloomy room. This flat position of the statue is a good deal against a fair estimate of the proportions of the statue, and, perhaps, accounts somewhat for the to us unpleasant effect these proportions produce. The head is extremely small for the body, and the features, especially the eyes and mouth, have a curious compressed, —almost pinched,—look, which contrasts oddly with the powerful finely-developed body. The hair is thick and massively-arranged, and just where it rises from the forehead there is a deep dent which adds to the troubled expression of the face. The surface of the right cheek of the statue is, from some accident of position, in perfect preservation, the original bronze colour is, for about 2 in. square, perfectly preserved, and every line of the working still observable; a growth of soft hair is indicated on both cheeks and extends over the lip and chin. The statue is perfectly nude, and apparently stood in a somewhat Polycleitean attitude "uno crure"; but as both legs are badly damaged it is difficult to be sure in the present position. The left-hand was raised, and held some object. The right-hand is placed behind the back. There is a slight rift in the upper part of the right arm, but not enough to throw any doubt on the original position. Just in the middle of the body an inscription, as yet unexplained, is scratched, probably a Roman number, as follows: L·VI·Γ·XXIX. The statue was at first called a Heracles, an attribution suggested by the somewhat excessive muscular development. Perhaps when no authoritative dictum has been pronounced it may be rash to advance an opinion, but our own clear conviction is that the statue represents neither god nor hero, but is a portrait statue; further, that it has no claim to be of either the best or second best period, but that a certain realism of style and also a want of reserve in expression condemn it to at least post-Alexandrian days.

THE proposed system of charging for the names and addresses of sender and recipient in sixpenny telegrams is not likely to commend itself to the public mind. It is, to begin with, such a very decided change of system that it is not likely to be accepted without very strong and convincing reasons shown for its adoption; and the theory of the Postmaster-General that the sender's address is usually surplusage, has already received very strong contradiction on the part of business firms who make large use of the telegraph. In the case of what may be called private or social telegrams, no doubt the sender's full address often is superfluous, but not in the case of business telegrams. On the other hand, we entirely concur in the general principle that the telegraph system should be, if not remunerative, at least self-supporting; in other words, that those who do not send telegrams are not to be charged with any part of the expenses of those who do. A plausible suggestion is that of "Compromise" in the *Times*, who proposes that the address of the recipient should be uncharged, and that the telegram form should be headed only for the one address, leaving the sender to describe himself as far as he thinks necessary in the body of his message. This would effect half the desired saving in space and cost, and be a premium on brevity, without altering the general principle and method of procedure so much as the Postmaster-General's proposition must alter it. But we are against any tampering with the principle of freedom of address. Free addresses, and messages at a halfpenny a word, would probably meet the public needs best.

THE promoters and the opponents of the Railway Rates Bills both held meetings last week to consider the present aspect of the question, and to decide upon future action. The latter, as represented by the Association of Municipal Corporations, expressed the satisfaction with which they received Mr. Chamberlain's statement that it was his intention, if the Bills were pressed to a second reading, to oppose them. The Royal Commission proposal does not commend itself to the traders so long as the Bills are in suspense, and the following resolution was arrived at:—"That, in the opinion of this Association, the issue of a Royal Commission, so long as the Bills are before the House, is inexpedient, as tending to show that the Bills had not been unconditionally withdrawn or rejected; but that this Association will hereafter concur in the subject being referred to a Commission which, both in regard to instructions and especially its composition, will command the confidence of the public." The General Committee presided over by Lord Henniker had previously expressed a strong objection to the matter being referred to a Commission, even though the Bills were withdrawn, and until this had been done, or the Bills rejected, they determined not to proceed with further negotiations. Now, as the railway companies had shown their willingness to accept Mr. Chamberlain's proposition, and had promised,—in order to facilitate negotiations,—not to introduce the Bills for the second reading before Easter, it is not to be wondered at that they resent this, and at their meeting they decided "Not to withdraw the Bills under the dictation of the traders"; and although they do not expect to pass them, they wish to have the subject discussed in the House. This is, after all, the best thing that could happen for both parties, and if a Royal Commission should be eventually appointed, they would probably find in the discussion some useful material for their work.

THE tramcar disaster which occurred at Bury on the 3rd current may lead us to congratulate ourselves on what has been sometimes regarded as unfortunate, namely, the limited area of the arches that cross over our railways. The tendency to carry a dangerously top-heavy weight, — which was the cause of the Bury overturn,—is thus adequately checked. It should be the care of the Legislature to provide some corresponding limit to contours in the case of tramways. The disposition to pile on a vehicle all that it can carry, and even "to stand up on the top" of the mass, is natural to men ignorant of mechanics; and this is a case which it is evidently dangerous to leave to the unassisted prudence of the English public. The tramway returns ordered by the House of Commons do not enumerate the number of accidents among either the 330 million of annual passengers, or the unenumerated servants, of the tramway companies. We apprehend that the list of casualties must be proportionately much higher than on railways. It would be doing good service if the honourable member who moves for the return of tramways up to next July would add a requisition for the statement of the numbers of servants, the numbers of horses, and the numbers of accidents on each line.

THE case of the Vestry of St. Marylebone *v.* Rose, which was decided on the 30th ult., in the Queen's Bench Division of the High Court of Justice, deserves a passing note. This was an appeal on a case stated by Mr. De Rutzen, the police magistrate, with regard to a building erected in Finchley-road, near Marlborough-road Station, in advance of the general line. The questions for the opinion of the Court were,—(1) whether the certificate of the Superintending Architect, with plan annexed, constituted a sufficient decision as to the general line of buildings; and (2) whether, if the certificate were held to be sufficient, it was conclusive and binding upon the magistrate, so that he had no power to fix any other line than that determined by the Superintending Architect. The Court gave judgment in favour of the Vestry, with costs. Mr. Justice Mathew remarked that the main question in the case had been disposed of by the decision of the House of Lords in the case of Spackman *v.* The Plumstead Board of Works, to which we have already referred (*Builder*, pp. 328, 405, *ante*), and replying to an objection that had been taken by the respondent, that the Superintending Architect in the plan attached to the certificate had not made the general line of buildings, as found by him, continuous, observed that he was not clear that the Superintending Architect was bound to do so; differing upon this point from the opinion of the Lord Chancellor, as expressed in the course of his judgment in Spackman's case. Mr. Justice A. L. Smith remarked that the decision of the House of Lords in Spackman's case had established that the Superintending Architect is the sole judge of what the general line of building may be, and that the magistrate has no power of supervision over him.

BY careful and prolonged study of the Etruscan tombs, chiefly at Corneto, Professor Helbig seems to have succeeded in throwing a ray of light on a mysterious subject. The graves of Corneto (and also of Vulci) show, in their earliest forms, two types. First, and most ancient, the so-called "tomba a pozzo," a hole pierced vertically either in the ground or through rock, and containing a vessel with the ashes of the corpse. Second,

the "tomba a fossa," a square grave containing an unburned corpse; graves of this second time contain undoubted specimens of "Corinthian" vases, and are undoubtedly the work of the Etruscan people; so much is also clear of the "tomba a pozzo." The interesting point is that a whole series of burying-places have been found in the valley of the Po, which are of a character precisely identical to these "tombe a pozzo" and "tombe a fossa." This affords evidence, that is well nigh conclusive, to prove the hypothesis advanced years ago by Professor Helbig, namely, that the Etruscans, like the Italians, came in from the North. This influx was, Professor Helbig thinks, about at the same time as the Dorian influx into Greece. The paper was read at the "Winckelmannsfest" of the Archæological Society at Berlin.

ON the same occasion Dr. Curtius reviewed the work of the past year, and his summary is so valuable that we abstract the substance from the report of his speech in the Berlin *Philologische Wochenschrift*. The excavations on the Acropolis have led to important results for the history of archaic Greek art. Foundations of pre-Periklean date have been laid bare, and monuments, and above all inscriptions of the time of the Peisistratidæ have been brought to light. When we consider what a clean sweep the Persians made of all the more obvious monuments of this date, the smallest residuum becomes infinitely precious. These excavations are still in progress. Specially valuable, too, for the history of archaic art, have been the discoveries of the French at Delos. Any opinions on the sculpture schools of the Cyclades must now be based on the monuments gathered together in their newly-founded museum at Myconos. The excavations at Clazomenæ have brought to light the first known monuments of early Ionic painted pottery. America has been busy at Assos, and the full publication of the results of their new excavations is eagerly expected. What little was left by the Prussians to be discovered at Olympia has been carefully gleaned together by the Greek Government; the last quarter of the great Palæstra has been laid bare; and small fragments of the pediment group of the metopes, a few bases of statues, and some archaic bronze and stone works have been dug out. Popular interest will, undoubtedly be most excited by Dr. Schliemann's discoveries at Tiryns, but to archæologists they yield in interest to the investigations carried on at the Asklepeion near Epidauros. Here an unusually fruitful yield of inscriptions and architectural and sculptural remains has been found, and many details added to our knowledge of ancient medical practice. Our knowledge of pedimental sculpture has received important additions from the discovery of the reliefs in porous stone, with representations of Herakles; Epidauros has also yielded fragments of this particular department of sculpture. Further afield come the Lycian discoveries of Benndorf, which we have elsewhere noted in detail; and last, though nowise least, the continuation of the work at Pergamos. The interest of these Pergamene excavations began with the marbles of the great altar, but subordinate discoveries have followed beyond the limits of the altar terrace, and of scarcely inferior value. The labours of the present year, the report of which has not yet reached Berlin, may have much to show.

IT is interesting to hear from Athens an exact statement of the money expended in archæological work. Mr. S. Kumanudes, in reading the report at the annual meeting, stated that in the past year (1884) 35,000 drachmas (*i.e.*, about 1,400*l.*) had been expended in excavations carried on in Eleusis, Epidauros, Olympia, and Oropos, and 45,000 drachmas (*i.e.*, about 1,800*l.*) on additions to the national archæological museums. The total sum is not a large one, considering the archæological needs of the country; but it must, of course, be borne in mind that much work is carried on quite independently of the funds supplied by the Greek Government. Dr. Schliemann has his own private resources; France, Germany, and America, with their Hellenic schools, are all at work. May the proposed British school at Athens be soon added to the number.

IN the *Literarisches Centralblatt*, No. 52, p. 1,883, appears an interesting account of the now notorious archæological forgeries at Leghorn. An apparently fine collection of antiquities was presented to this Museum of Leghorn. It consisted of objects, chiefly vessels, of remarkable and hitherto unfamiliar shapes, and a number of undecipherable inscriptions. A good deal of speculation was aroused among archæologists, but, happily, no one committed himself to any very serious opinion before Dr. Schliemann, with that happy "flaire" for which he is famous, scented imposture and pronounced the whole thing a hoax. A full account is given under the title "Raccolta Archæologica Chiellini in Livorno, by Pellegrini," and reviewed in the *Literarisches Centralblatt*.

IN clearing the ground preparatory to laying foundations for a new museum at Treves, the workmen have come upon remains of a mosaic pavement, containing both figures and inscriptions. The design seems to have consisted of the Nine Muses engaged each in instructing some poet or prose writer. At present there have been made out the figure of Urania instructing Aratos; another Muse, name uncertain, instructing the logographer Kadmos; Euterpe teaching the Phrygian musicians Agias and Polyhymnia. On the outside border of the mosaic are figures of gods with the names of the months attached. In the four corners are the seasons,—of which Autumn only is preserved.

LETTER FROM PARIS.*

THE exhibition of works in black and white, which we announced last month, has been opened in the Grande Salle des États at the Tuileries. It is, if we are not deceived, from England that our artists have borrowed the idea of this class of exhibition, which has not given, this time at least, all we hoped from it. Too great hurry in hanging, and, perhaps, too much indulgence in the admission of works, have produced results very inferior to what people were expecting. It would, however, be unjust not to note with appreciation the etchings by Gaucherel, the engravings of MM. Boilvin and Lalauze, the beautiful charcoal drawings of M. Maxime Lalanne, the drawings of MM. Bida, Français, Gérôme, H. Leroux, and lastly the charming compositions of M. H. Pille, whose talent as a designer makes us forget his dull and sometimes disagreeable colouring as a painter.

This last observation would apply equally, in relative proportion, to Gustave Doré, whose works are at present exhibited at the Cercle de la Librairie; a singular exhibition, organised with pious care by M. H. Plon (the celebrated printer) and M. Duplessis, curator of engravings at the Bibliothèque Nationale, to whom we owe the biography of the artist.

Doré has been an incomparable designer, with a fecundity almost unprecedented, and his inexhaustible imagination has given birth to some *chefs d'œuvre*. There are in this collection works of extraordinary force, and a diversity of type, style, and manner which confounds one. The colossal work of Doré is exemplified, but from the contemplation of it arises afresh in the mind of the visitor the conviction, already long ago formed, that, both as painter and sculptor, Doré has only pursued, without attaining, these forms of a talent which only reached its full development when he took the crayon in hand to illustrate Cervantes, Dante, Rabelais, or to interpret his own impressions in his travels in France or Spain, or his residence in London.†

If posthumous exhibitions have their dangers, they form also, for some artists, a magnificent consecration of a talent too soon cut off. This is the unanimous opinion of those who have seen, at the École des Beaux Arts, the collection of the works of Bastien-Lepage. What vigour, what truth, what masterly simplicity, what absolute respect for nature! Almost all his work is collected here, from his first drawings at the École down to the sketches for the pictures which were interrupted by his death. This exhibition shows plainly that the youthful master was far from having completed his task, and that the future would still have had masterpieces in store for us. There are more than 200 pictures and 117 drawings and water-colours. Without pretending to make a choice among so many remarkable works, we may notice, in passing, "Le Foins," the "Portrait de mon Grand-père," "La Récolte des Pommes de Terre," the portraits of Albert Wolf, Gambetta, and Coquelin, and that of Sarah Bernhardt, which is a marvel of delicacy and sentiment.

From this exhibition to that of the works of Delacroix is but a few steps, and the crowd issuing from the one betakes itself to the other, without the redoubtable neighbourhood of the great master in any way prejudicing Bastien-Lepage, who so little resembles him. Although already belonging to a past generation, and in spite of the oblivion into which romanticism in art has now fallen, the work of Delacroix maintains itself still in those serene regions where criticism cannot penetrate. Putting aside certain faults of method which are often and perhaps too much dwelt upon, there remain nevertheless beauties of the first order which give to that exhibition a strong attraction. "Le Martyre de St. Étienne," "L'Amende honorable," "Les Deux Foscari," "L'Entrée des Croisés à Constantinople," "La Barque du Christ," "Le Giaour," "Jésus au Jardin des Oliviers," and especially "Boissy d'Auglas à la Convention," that sketch so finely translated in the etching of Bracquemond, are imperishable pages which one is happy to see united in an exhibition which has for its object to raise to Delacroix the monument which he should have long since had. And while on this subject let us add that the "Entrée des Croisés," which up to this date has been exiled at Versailles, is now to take its proper place among the treasures of the Louvre.

Following the example of the water-colourists, the pastellists of France are also about to constitute themselves a society and to exhibit their works every year in the galleries of M. Georges Petit. The first exhibition, organised by M. Roger Ballu, will take place this month, and will comprise works by MM. Emile Lévy, Lefebvre, Baudry, Gervex, Besnard, T. Beraud, Cazin, John Lewis Brown, Jacquet, Adrien Moreau, Lhermitte, Philippe Rousseau, &c.; it will be rendered more complete by a retrospective exhibition, in which will figure the pastels of Latour, Rosalba, and other charming masters of the eighteenth century.

There is yet another exhibition very well suited to the Parisian public, which goes to indulge its curiosity in the Goupil galleries, Rue Chaptal, to see the drawings which Edouard Detaille has executed for a grand publication to be entitled, we believe, "L'Armée Française." M. Detaille's reputation is long since made; no one knows better than he how to render the military types of both French and foreigners. His drawings have marvellous precision, irreproachable correctness; his unerring pencil does not forget a fold of the cloth or a buckle of the belts, a bit of the braid or a button of the gaiters; it is impossible to imagine anything more carefully done. But does not this very exactitude weary one in the end? The personal details are given with such minute fidelity that life-like character disappears, and these admirable drawings seem like excellent photographs heightened by a tint of water-colour. Apart from this criticism one cannot but recognise the interest of this exhibition which passes in review before us, with so much learning, the variety of uniforms worn by the French army from the last century to our own days.

To finish with these special exhibitions, which tend to multiply more and more, we have an announcement of an exhibition of an entirely new kind, and which will certainly not want originality. A group of Republican journalists propose to collect the works of artists who have become celebrated, and who at the outset were refused admission into the *Salon* by a jury even more academic than that of to-day. It is one way of showing the public what the spirit of clique in matters of art is capable of, and what cruel injustice the Institute is to be accused of

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* Concluded from last number, p. 476, *ante*.

† Yet Doré's London sketches were curiously unlike the reality; they were London seen through Doré's spectacles. But we quite agree with our correspondent as to the superior value of Doré's monochrome illustrations to Dante and Rabelais. Indeed, we doubt if he ever did anything superior to the Rabelais, which was a production of his early youth.—ED.

against those whose talent posterity has recognised. "Tantæne animis cœlestibus iræ?" It will certainly be piquant to find there, in touching posthumous confraternity, Courbet, Rousseau, Millet, Daubigny, Puvis de Chavannes, Troyon, Manet, and even——Delacroix!

Henri Lehmann, who was one of the most eminent and inflexible among those select judges of the old days of the Académie des Beaux Arts, carried to an extreme his horror at the novel tendencies of modern painting. Lehmann is dead, but his artistic hatred has survived, and in his will a sum of 30,000 francs was left to the Institute, to found a triennial prize of 3,600 francs in favour of the young painter who in his works should have shown the strongest practical protest against the fancies of the Impressionist school.

We must not forget to mention the splendid present which the Committee of the Société des Artistes Français have made to M. Bailly, President of that Society since its foundation. It is an album containing an original drawing by each of the members, and signed by fifty painters, twenty sculptors, nine architects, and ten engravers. This inestimable collection has been presented to M. Bailly by M. E. Guillaume in the name of all his colleagues. M. Bailly is known, beloved, and respected by all the artists in France, and in other countries, who have had the opportunity of appreciating the kindness of manner and goodness of his heart in his relations with his brother artists, and we are glad to register this homage rendered to the venerable President of the Société des Artistes Français.

SMOKELESS HOUSES AND MANUFACTORIES.

THIS was the subject of a lecture delivered at the Parkes Museum (by invitation of the Council of the National Smoke Abatement Institution), on the 26th ult., by Mr. Thomas Fletcher, F.C.S., of Warrington.

The lecturer said:—There is no possible doubt that all large towns can be made absolutely smokeless with economy, and also that the strongly acid nature of the atmosphere in all large towns and cities can be very greatly improved. How bad the state of things in London is at present may be judged from the fact that, wanting some litmus paper, which is used in testing for weak acids, I failed totally to obtain any, after a long search, which was not already turned in colour by the acid of the atmosphere, and I had to telegraph direct to the makers for some. I held a strip of this paper out of a railway carriage window for a few seconds, with the result that the exposed part was turned red by the acids in the air. The mud in the streets, the damp stone walls, and even the moisture on the leaves of plants, all gave a distinct acid reaction. I have seen the leaves of plants, miles away from the city, burned by a light shower after a fog in the city. When our towns are smokeless the total consumption of fuel will be decreased enormously, as I will prove to you, both in houses and manufactories. The most advanced users of fuel are beginning to see through the fog and smoke, and I believe it is now a question of a very limited time before we see the end of the nuisance. The question of smoke must be looked at from a money point of view, and smoke abatement must be either compulsory or profitable. Not one householder or manufacturer in a thousand cares how much smoke he makes provided it goes the right way up his chimney. My principal business to-night is to give you actual results obtained in my own works and house, which are, and have been for a long time, practically smokeless. The house was built with the ordinary fireplaces for coal, an open fire range with boiler, hot-water cylinder, and the usual appliances. What it would cost to work this with coal entirely I cannot tell you, for the simple reason that gas has been used, more or less, since the house was built. Those who have had experience with coal will be able to compare the figures as to comparative cost. In the first place, absolutely no alteration has been made with any existing fireplaces or fittings, except that a large gas-meter and good-sized gas-pipes have been fixed. The extensions as regards gas have been gradual, and in the last eight years probably 5*l.* may have been expended in gas fittings, to get a large service to every room in the house. The first cost of the whole of the appliances, gas fireplaces, cooking, water-heating, bath-heating, washing, drying, ironing, &c., at "Stores" prices, for the house, which contains thirteen rooms, would be about 26*l.* Of the three sitting-rooms, two are used only at intervals, and fires are used in at least three bedrooms every night and every morning for about seven months in the year, fires being also lighted whilst the bedrooms are being used as dressing-rooms. The whole of the cooking for ten persons, water-heating for baths, and general domestic purposes, and a portion of the washing and drying (sometimes all) are done entirely by gas. Now comes the question of cost. In the first place, it would be practically impossible to have coal fires in the bedrooms both night and morning, as we have them, and here gas scores one important advantage. If it were possible, there would be with us at least twelve fires to be lighted every day for six or seven months. This, and the consequent cleaning, would be nearly, if not quite one servant's work; in fact, if the extra labour in cooking by fire and the usual style of washing are added, there would certainly be quite the work of a servant, which, for seven months, would mean in food and wages at least 16*l.* Our total gas bill for twelve months has been, on an average, with gas at 3s. 3d. per 1,000, 8*l.* for lighting and 13*l.* to 14*l.* for all other service, *i.e.*, fires, washing, cooking, and baths. This for the last two years may be considered an experiment, and, being so, no doubt has had extra supervision, which, when discontinued, may possibly mean 5*l.* or 6*l.* per annum in extra waste; but the fact remains that with ordinary care the work has been done in a style totally impossible with coal, for two years in succession, at about the same cost as coal, and with a great saving in servants, dirt, and inconvenience. Further than this, whilst one of the children was suffering from scarlet fever, we were enabled to maintain perfect isolation in the upper part of the house, and so prevent the spread of the disease,—a matter almost if not quite impossible if gas had not been available for all purposes. From what I can learn, it would appear that in the districts where coal is plentiful and comparatively cheap, it costs about 7*l.* per annum for the kitchen fire and about 3*l.* each for sitting-room and nursery fires. In London, where coal is twice as costly as with us, I do not believe the actual expenditure per annum is, on the average, any higher, the fire-grates being very much smaller, and the lavish expenditure of coal common in the North is checked in this neighbourhood by its excessive cost. The necessary cost of fuel for any domestic purpose is exceedingly small, the actual cost bearing no proportion whatever to this, which is ruled by habit and education, rather than by necessity. The London fireplaces strike a visitor from the coal country with astonishment at their apparently ridiculous smallness, but they soon learn that, by a slight alteration in the method of dressing, they can keep themselves quite as comfortable, or even more so, than by a large fire. As the cost of fuel goes up in different countries, so do we see its consumption going down, whilst the same operations are being performed. This reduction in quantity of fuel is apt to strike those accustomed to more extravagant ways as mean and uncomfortable, but it is simply a question of habit. There can be no meanness in economy, nor is there likely to be any discomfort if the economy is not accompanied by meanness: a cook in India will do more good work with a pound of fuel than a North of England cook will with twenty pounds. Many English cooks will burn one hundred pounds or more of coal in preparing a dinner; on the other side, I may refer to some tests made for the Committee of the Gas Institute, and published November, 1884. In one of them, with a consumption of 25 cubic feet of gas, which is in fuel value equal to about one pound of coal, the work done was 7¼ lb. mutton roasted (not baked), 1¾ lb. soles grilled, 5 lb. potatoes roasted, a rice pudding, rhubarb tart, and samples of puff pastry baked, the weights of the latter three dishes not being taken. The whole of the cooking was very well done. I do not wish you to imagine that even this small quantity of gas fuel was absolutely necessary, as the actual heat absorbed by the food whilst being cooked would not be one-fourth of this. There is a limit to excessive economy in the fact that the necessary arrangements for this are not always either cheap or easy to manage for such irregular work as domestic cookery. We have rather large and straggling plant-houses and conservatory, the boiler of which is heated by coke, this giving a smokeless chimney. I am not an advocate of smoke prevention as it has been commonly dealt with, as an abstract matter which is desirable at any cost, and I would not use any of the arrangements referred to except as a matter of direct advantage. I am only an average mortal, and consider my own pocket and convenience. One of the difficulties with gas has been that for kitchen purposes an open fire is sometimes a necessity, and this, the missing link between the old and new systems, I think we have at last succeeded in obtaining, by a gas fire which will roast, bake, heat water, and warm the kitchen with a single burner. Those whom business calls into closely-populated districts in the early morning will, I think, agree with me that private houses, as a whole, are as great a nuisance as regards smoke as manufactories. The people employed in a works will, as a total, make more smoke and create a greater nuisance with their house chimneys than is made in the works. The workman's wife can, by the use of gas, save herself a great amount of hard dirty work and reduce her expenses to a greater degree even than those who are in a better position in worldly matters. There is one point against the adoption of coal gas as a general fuel for domestic purposes in the fact that it has been, and still is, almost invariably sold at a fancy price.

My recent statement in the *Journal of the Society of Arts*, that we carry on a manufactory employing 130 (and more recently 140) hands, with the necessary steam power, forges, fires, &c., without any smoke, has called forth many comments and expressions of disbelief. I can only say that if our chimneys, which are fifteen in number, have a smoky end it is outside and in full view from the Warrington Station on the London and North-Western Railway. Coke is used for the fires and forges, simply as a matter of economy, and the steam boiler is worked also with coke, occasionally assisted by a very small quantity of slack, a space of about half of an inch being open under the boiler furnace doors to supply a thin flim of air over the surface of the fire. Our steam boiler, to those who do not know it, is a joke: it is an old-fashioned, externally fired, egg-ended pattern, 15 ft. long, 3 ft. 6 in. diameter, with a fire 3 ft. wide and 2 ft. 8 in. long, and a shallow flue, 5 in. deep, the whole length of the boiler, without return. It fortunately happens that Mr. Paterson, the President of the Manchester District Association of Gas Engineers, has been making experiments on the evaporative power of coke and coal in a double-flued Lancashire boiler, 18 ft. long and 6 ft. diameter, the cost of which is about three times that of my own, the space occupied being more than double. In this boiler, with two fires, he evaporated an average of 724·5 lb. of water per hour, using 1 lb. of coal for every 8·05 lb. of water converted into steam. With coke in the same boiler he evaporated 765·3 lb. per hour with an average of 7·8 lb. of water per lb. of coke. In our small boiler, with a single fire, we have evaporated in a twelve days' test 1,000 lb. of water per hour, and the average fuel consumption of two years has been, as near as I can possibly estimate, 1 lb. of coke to every 7¼ lb. of water made into steam: the exact figures to decimals are not available, because we use from the same coke supply for the blacksmith's fires. The credit of the high duty of the boiler may fairly be given to the width and shallowness of the flue and firebox, and with a very good reason. The boiler inspectors objected to the flues preventing proper external examination, so we cut the setting away, making a deep flue of the usual form. As a matter of experiment this was left open for six months, and our fuel consumption went up about 20 per cent. We now fill the deep flue behind the bridge with loose bricks, so that they can be removed for inspection of the boiler, and our fuel consumption has dropped to its normal level. You will bear in mind that I do not recommend so small a boiler to be worked so hard as to evaporate 1,000 lb. of water per hour, as it is extremely difficult to prevent priming, but the fact that we can on an emergency get, with a good engine and expansion valves, about 30-h.p. indicated from a boiler 15 ft. by 3 ft. 6 in. with coke as fuel, is, I think, an unanswerable argument in favour of a smokeless boiler. The fire bars are 12 in. from the bottom of the boiler; rather thick fires are used, and the boiler is, at every inspection, reported to be in first-rate condition by the Manchester Steam Users' Association, who are, perhaps, the most independent and

hard to please of any boiler insurance company in existence. If it paid better to have a smoky chimney we should have one, so far as the nuisance inspector would permit. Steam users have occasionally tried coke as a fuel and failed to keep up steam: an explanation of this failure has been afforded by our having for a time to drive the boiler to its maximum possible power. After clinkering the bars a thick mass of cold and possibly damp coke is thrown on, which, under ordinary circumstances, affects the supply of steam at once. If, at the time of firing, a thin scattering of slack is thrown on the top of the coke, a clear smokeless flame rises instantly, which keeps up the steam until the coke is fairly incandescent and capable of doing the work; if, when driving our hardest, we had omitted to do this, we, like some others, should have failed to obtain satisfactory results, although this assistance from slack is never required except when hard firing and excessive driving of the boilers is a necessity. We have in the Lancashire district a large number of works which, in the opinion of the proprietors, cannot be carried on without making smoke. At the Leeds meeting of the Society of Engineers my lecture on flameless combustion was received as a curiosity, and the demonstrations were taken as laboratory experiments rather than possible commercial facts. That they created a strong impression in the minds of earnest experimenters was proved by the communications received from scientific men all over the world. The value of the possible application of this system of heating has been fully appreciated as an abstract idea, and endeavours have been made to reduce it to practice on a commercial scale. I think the honour of having first applied it practically in large furnaces may fairly be given to Mr. F. Radcliffe, the forge manager at the Royal Arsenal, Woolwich, In a steel-making furnace of the simplest construction and of exceedingly low cost, he has combined a gas-producer of almost unlimited power, from which the hot gas is taken direct into the furnace, a simple continuous regenerator, and a furnace of a power which we may fairly say is practically almost unlimited. With the direct introduction of the hot gas into the furnace he obtains a heat of any character required, and a regenerator which is free from liability to choke with burned pitch, and exceedingly simple and cheap in construction. The small amount of waste heat which, in the experimental furnace, goes into the chimney, can with ease be utilised to make steam for the power which is always required for dealing with the products of the furnace. I have examined this furnace whilst in full work, and have also looked into the chimney, and both were as free from flame and dirt as this room. We may take it as an accomplished fact that small, compact, and cheap furnaces can be built which will make gas from the poorest fuels, and will give a pure flameless heat of any character and of any required intensity. It is simply a question of form and detail to adapt this system, not only to the open hearth steel furnace in which it is now used, but also for iron puddling, all classes of reverberatory furnace work, glass-making, heating gas-retorts, and in fact any purpose where high temperatures and continuous heat are wanted. The waste heat is always needed for steam raising, and after this there are many other industries to which any remaining heat could be applied. There are several purposes to which gas is applied to a limited extent, and matters are at present in a state of transition. Amongst these I may mention bakers' ovens and furnaces for stained glass and enamels. No doubt, in a short time, these and other matters will be worked out so fully as to make the adoption of gas fuel a necessity of the trades; a beginning has been made, and a little time now is needed to perfect the arrangements, which, up to the present, do not fulfil all necessary requirements for every trade as to simplicity, convenience, and economy. The ground has been cleared by independent experimenters, and I think it may fairly be said that both houses and all manufacturing industries can be profitably carried on absolutely without smoke, and it is simply a question of time as to when this state of things becomes general throughout the world. The future of gaseous fuel is settled beyond all question on the best of all possible grounds, that it is profitable to use, and users of solid fuel will soon discontinue their present system when they learn their position in the matter.

COMPLETION OF NEW PALACE AT WESTMINSTER, AS DESIGNED BY ITS ARCHITECT, SIR CHAS. BARRY, R.A.

THE following letter has been sent by Mr. Charles Barry to Members of Parliament, and we are requested to give it further circulation, which we very willingly do, agreeing in general with the views expressed in it, and holding that the ultimate completion of our greatest national building of modern times is a matter which is not to be shelved at the instance of a committee, mainly composed of very amateur archæologists, who are bent on carrying out a piece of 'fancy' restoration. Mr. Barry writes:—

"This important subject has, I think, been overlooked by the Committee on Westminster Hall in the smaller consideration of whether or not the west side of Westminster Hall shall be restored and left open to public view.

On this matter I submit the following remarks on certain designs for a cloister building between the buttresses on the west side of the Hall, and represented by painted models on the site, representing two modes of treating the question.

It seems a waste of public money to carry into effect a so-called restoration which is conjectural only, so far as design is concerned.

It seems a waste of public money to start with this idea of restoration, authentic or not, and then to try and find some use for a few rooms which would be contained in the new work.

If further rooms are wanted at the New Palace, the proper course would be to consider their number, use, convenient size, and convenient position, and then to find if and where such accommodation could be got in connexion with or addition to the present building.

Three or four rooms are contained in the proposed cloister and building at the north end of the same, and are said to be intended for committee-rooms.

Those between the buttresses are narrow (only 20 ft. wide), low (only an average of 13½ ft. high) have ceilings in part sloping; have two small windows in each, giving insufficient light, and they are isolated from the rest of the building, being approached only by stairs which would project very inconveniently into Westminster Hall.

Under these rooms an open arcade is proposed, practically useless for any purpose.

In short, the said rooms are, in my judgment, entirely unsuitable for committee-rooms, and no other use has been ever defined for them.

As to external effect, the two-storied building between the buttresses, which it is said is the one preferred by the Committee, dwarfs the side wall of the Hall (if it is to be left open to view), already low in effect, in spite of a lofty parapet proposed to be added, for which no authority exists, its existence, height, and design, being all matter of conjecture.

The above-named building at the north end of the proposed cloister, at right angles to it, and the design of which is also matter of conjecture, is, as designed, low, with little architectural character, and will, I think, have a very mean effect as seen from Bridge-street, Great George-street, or Parliament-street. The one room in it will serve no ascertained purpose, and is isolated from the rest of the building.

The general effect of the whole treatment thus proposed (viz., to attempt to restore the west side of Westminster Hall to what it may or may not have been in the time of Rufus), will be thoroughly incongruous with the far more important building of the New Palace at Westminster, of which it unavoidably now forms a part, since the style of architecture of the Hall is essentially different from the style adopted for the Palace. The details of the former are consequently quite out of scale with those of the latter, and the harmonious effect which should be preserved throughout so important a building will be entirely sacrificed. More or less picturesque it may be, but devoid of the dignity and unity which should be characteristic of an important public building.

I see that some architects who gave evidence before the Committee speak of this mutilation of architectural harmony as a 'pleasing foil.' Surely it is rather a violent and unpleasing contrast of two conflicting ideas.

No sort of reason is given for any of this work being done at present, save the protection of the now exposed and partly decayed side wall of the Hall and its buttresses from the effects of the weather. This may be done in either of two ways, and at one-fourth of the cost of 25,000*l.* to 35,000*l.* now proposed to be spent on useless buildings, viz.:—

(*a.*) Either by cutting out and replacing all decayed and decaying stone, as is being now done at Westminster Abbey;

(*b.*) Or by repairing the buttresses and covering in the side wall of the Hall with a low passage or cloister sufficient for that purpose only, and which cloister or passage might be constructed either in stone or other material.

I think the former the most reasonable course to pursue.

By this means the only area which exists adjacent to the New Palace available for the enlargement of that building, having regard to surrounding thoroughfares, if and when the need for such enlargement arises, will be kept free and useful when so wanted.

It has been admitted by all the witnesses before the committee, professional or otherwise, that when such enlargement shall be needed, the design of Sir Charles Barry in respect of this area should be carried out, as conceived by him and recommended to the Government in 1854, the design and plans of which are extant, though no doubt some modifications in detail (but not in principle) would be needed to suit the actual public requirements at the time.*

Mr. Shaw Lefevre has suggested, in his evidence before the committee, that the designs of Sir Charles Barry 'may be understood to be given up.' This is a gratuitous assumption. Now is the time for their practical consideration.

In any case I think nothing should now be done beyond replacing or protecting the decayed stone of the walls and buttresses of Westminster Hall, and preserving careful record of the foundations and remains of former buildings on this area, for the archæological interest attaching to the same, by making measured plans and taking photographs of the same.

It may, I think, be further urged that consideration should now be given to the question whether Sir Charles Barry's design should not very soon be carried out, as it would effect a large saving annually of public money now paid for rents of dispersed buildings in London rented temporarily and expensively for various purposes connected with Government or Parliament.

Authenticated returns of such out-offices so rented would, it is believed, make this abundantly clear, while the convenience of concentration seems obvious, and has been repeatedly advanced by different Governments as one chief reason for the erection of the various public offices which have been erected from time to time. Such arguments would surely be equally valid in this case.

No evidence was given by the architects who were called in support of the proposed plan as to the accommodation it provides being either required or good of its kind (which it certainly is not), but they were agreed that Mr. Pearson had treated the matter '*qua* restoration' with ability, which nobody has denied.

I contend, however, in conclusion, that such a restoration, which is practically useless for any public purpose, should not be the consideration in this case, but the true aim should be to do nothing which might conflict with the fitting completion of the most important building which this country possesses, and one acknowledged by Englishmen and foreigners to be an architectural work of which the nineteenth century may well be proud. And if this be so surely some regard is due to the recorded intentions of its architect how most fittingly to complete it.

I need hardly say that the part which I have taken in this controversy has been dictated by the duty which I owe both as son and as architect to my revered father's memory.

CHARLES BARRY, Architect."

No. 1, *Westminster-chambers*,
March, 1885.

Clerks of Works' Association of Great Britain.—The second annual dinner of this Association will take place on Monday evening next at the St. James's Hall Restaurant, Regent-street. Mr. Goymour Cuthbert, A.R.I.B.A., will preside.

* A perspective view of Sir Charles Barry's design is on view in the Tea-room of the House of Commons.

Illustrations.

THE PALAIS DE JUSTICE, BRUSSELS.

A GLANCE at what the good people of Brussels have lately been doing in the matter of public buildings is calculated to take a little of the conceit out of the peripatetic Briton. The population of London alone is equal to that of the whole Belgian kingdom, and the population of Brussels is less than that of a first-rate English manufacturing city. But while we have been for twenty years or more hesitating to spend a poor half-million or so on the housing of two of the great departments of the State, although urged thereto by economical considerations, the Brussels Municipality has expended no less a sum than two millions and a half sterling on their New Law Courts, and, undismayed, is laying out an additional half-million in providing suitable approaches and surroundings to the building; sacrifices, made in great measure out of a pure love of art, which may without exaggeration be called heroic.

The new Palais de Justice,—of a portion of which we give an illustration on a larger scale than that of the view which has already appeared in our pages,—occupies a commanding site, and is seen from all the country round. Its enormous mass impresses all beholders, but the magnificent amplitude of the structure is only fully realised when the interior has been explored. It is essentially a monument of architectural art,—providing, incidentally, eight small law-courts and some minor accessories, which, however, absorb but a very inconsiderable fraction of the whole. The buildings cover an area of between eight and nine acres, the main frontages of the block being 656 ft. and 558 ft. respectively. The Central Hall is of vast dimensions,—279 ft. in height to the lantern,—and the subordinate apartments are proportionately magnificent.

The author of this stupendous work is said to have been an ornamentalist rather than an architect, and an examination of his work supports the statement. His architecture is full of eccentricities. They are not the result of ignorance of the principles of art, and can only be put down to a wanton defiance of architectural traditions. The most unwarrantable liberties are taken with the general proportions and dispositions, and the details are often little short of barbarous. One cannot help thinking that the project was never studied in perspective, and that the several façades were independently arranged without due consideration of their mutual adjustments. Our illustration shows one of many examples of a capricious treatment of the principal orders, the frieze and architrave of one being squeezed into the depth of an adjoining frieze, Ionic caps jostling against Doric triglyphs without rhyme or reason. Nothing is gained by such irregularities, which are far too numerous and very much to be regretted in this otherwise fine design. The central lantern was the subject of several trial models, and the result fully justifies the thought and care expended upon it. In contour, proportion, and detail it is by far the most satisfactory portion of the exterior of the building. The statuary is exactly right in scale and treatment, and shows how very far our Continental brethren are in advance of us in this important feature of all really fine architecture. The sculpture and ornament of the interior are worthy of all praise, being abundant and of uniformly high excellence. Statues of heroic size,—Demosthenes, Lycurgus, Cicero, &c.,—already grace the broad flights of steps which lead from the porticos on either side of the main entrance to the *premier étage*, and funds are being ungrudgingly voted for the completion of the series. But, perhaps, the highest praise of all should be given to the ornamental plaster work in low relief with which the ceilings of the halls and corridors are adorned. In this part of his work the architect was thoroughly at home, and he has not spared himself either in the variety of his designs or their exquisite and delicate beauty. The exterior mouldings are almost always coarse and ill-designed,—and the angles of his blocks of building when seen *en silhouette* are clumsy and inartistic to a degree. But every line of the interior has been traced with a quite Grecian subtlety, and the curves of consoles and brackets are of surpassing grace and refinement. Nor is the breadth of the general effect less remarkable than the extreme beauty of the details. The courts are adorned with Belgian and other marbles, and the fittings are of rare woods, of quiet and appropriate treatment. The only point in which a little more care might have been exercised is the ornamental metal-work, which, from some unexplained cause, is certainly below the general artistic standard.

Notwithstanding all its faults, and they are many and grievous, the building is beyond question a work of genius,—wayward and unequal if you like, but genius still. With pain one feels obliged to add that its gifted designer shared a too common fate of genius,—that the anxieties and responsibilities of his position, aggravated by the meddling of official mediocrities, first drove him out of his mind, and then did him to death. He has, however, lived to accomplish sufficient for fame. He leaves behind him a monument of amazing originality and power, which will not only perpetuate his own personal skill, but form an enduring and honourable record of his countrymen's unselfish love of art.

The constructive difficulties of the undertaking were considerable, and have been on the whole successfully overcome. An instance of the kind of perversity which the work exhibits in so many forms is the use of monolithic or trilithic columns carrying architraves formed of small stones which are obviously kept in position by concealed expedients. The weights of the enormous superstructure are prodigious, and of very varying incidence; but a careful scrutiny does not discover any very serious settlements, nor any of those serious fractures which one might reasonably have expected to meet with in a work of such unusual magnitude and complexity.

The building was commenced in 1866, and opened in 1883, and we congratulate our Belgian friends on their splendid achievement.

It will be some years before it can be said to be complete in all its details. But the work is going on. Fortunately the architect made careful provision for everything necessary to complete the building before illness, long foreseen, disabled him from supervising the execution of his designs. The whole will, therefore, bear the impress of a single mind. It is a building of which, in spite of faults of detail, any age might be proud. And in the roll of the foremost architects of the nineteenth century posterity will surely accord an honourable place to that of Joseph Poelaert.

THE CHURCH OF ST. HIPPOLYTE, DELFT.

THE view of this church, which we give this week, is drawn from the plan and geometrical drawings furnished to us by its eminent architect, Herr Cuypers. The site being limited in extent, the transept form could not be adopted on the ground-plan, but the line of aisles is broken by two quasi-transepts, as seen in the view, to break the monotony of the side elevations. The main portion of the church is built in yellow and red brick. The shafts round the apse are in Swedish granite, the others in sandstone. The tower rests on piles driven deep into the foundation, about one yard apart from centre to centre.

The style of detail in portions of the building, more especially in the spire, differs very remarkably, as will be seen, from what we are accustomed to recognise in this country as in keeping with the feeling of Mediæval architecture. It is partly, however, for that very reason that this design, by an architect of the highest eminence in his own country, may have a certain additional interest to our readers, as a practical exemplification of the influence of local habit and association on architectural taste.

DESIGNS BY THE LATE M. E. HADFIELD.

IN connexion with the illustrations of Churches by the late Mr. Hadfield, of Sheffield, we now give in full the memoir of Mr. Hadfield, which was read at a recent meeting of the the Institute of British Architects:—

"After being articled to Messrs. Woodhead & Hirst, of Doncaster, and improving his professional knowledge in the office of Mr. P. F. Robinson, Fellow, then an architect of note in London, Mr. Hadfield settled at Sheffield, where he commenced practice in 1837. In 1838 he entered into partnership with his fellow-pupil and friend, the late Mr. John Gray Weightman, an arrangement which lasted until that gentleman retired from professional life in 1858. From the first Mr. Hadfield was actively engaged in general professional practice, chiefly in the northern and midland counties, and among a variety of public and private buildings designed by him and his partner may be named the town-hall, Glossop, the Norfolk and Fitzalan market halls, also the Queen's Tower, Sheffield, Knedlington Manor, Boreatton Park; and later, in conjunction with Mr. George Goldie, who had been his pupil, the Farm, a local seat of the Dukes of Norfolk; Glossop Hall, for Lord Edward Howard; several schools, besides many important churches in England and Ireland. Mr. Goldie, after a partnership of eight years, commenced practice alone in London in 1861.

The revival of the Gothic style, which received so great an impetus forty-five years ago, found in Mr. Hadfield an active votary, and the churches and schools erected at the time from the designs of himself and his partner show the result of much zealous study.

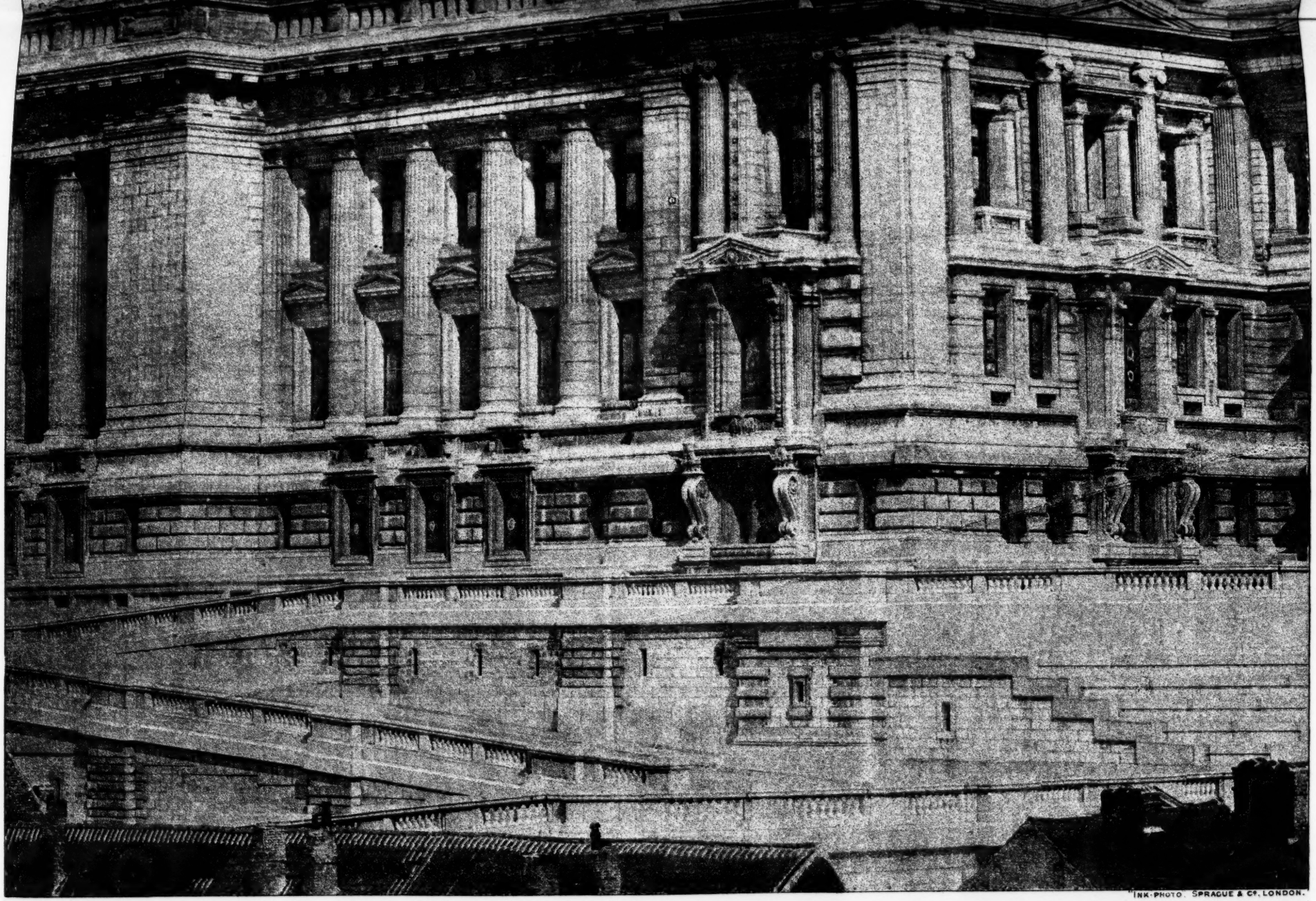
The churches they built at Carlton, Worksop, Masborough New Mills, and Matlock Bath are earlier instances, followed immediately by others at Liverpool, Birkenhead, Manchester, Middlesbrough, &c., and when Augustus Welby Pugin, writing in 1842, what he termed 'a review of the state of ecclesiastical architecture,' dwelt with all but exclusion on his own works as being worthy to form the text of his remarks, he pays Mr. Hadfield the compliment of describing and illustrating the little church then just built at Masborough, near Rotherham.

In 1844 was begun St. John's Cathedral, Salford, one of the very first 'revivals' of a large cruciform church with a central tower and spire. It is given by Mr. Eastlake as an instance, with an illustration, in his very interesting work. That this and several other of the architect's churches in Lancashire and elsewhere showed a great advance was universally admitted by those who hailed the Gothic revival as it gained ground.

The dissatisfaction which some critics were expressing as to copying too literally, rather than developing from ancient models, began soon to assume a decided form in the pages of the *Rambler* where may be seen, in its number of September, 1848, a view and description of St. John's. The articles of Mr. Capes, in his magazine and review, the *Rambler*, were so talented and convincing as to induce several architects to offer designs and suggestions for town churches in its pages. The late Mr. C. Parker, the author of 'Villa Rustica'; Mr. W. W. Wardell, now a leading architect in Australia; and Mr. Hadfield, were of this number, the latter contributing a design in the Byzantine style to the January number, 1850. Grieved by its sharp criticisms, and accustomed to little but adulation where church architecture was the question, an amusing and characteristic pamphlet next appeared from the pen of Mr. Welby Pugin, entitled 'Remarks on the articles in the *Rambler*,' which gives a lively insight of the progress of the 'revival.' In it the round-arched design, of course, comes in for an unmerciful scathing, and expressions more direct than elegant testify to the wrong-doing of a friendly rival, who could dream of deserting the pointed arch. Not that these remarks ruffled the temper of the peccant architect,—a smile, with a good-humoured verbal protest, was the reply. The design in question was afterwards carried out, with some modification, in the church at Mulberry-street, Manchester; but the English Gothic of the fourteenth century remained, after all, Mr. Hadfield's chosen style, as instanced in the well-designed church at Burnley, 1845, and still more in a better-known work, St. Mary's, Sheffield, begun in 1846, which gained for its architect much credit.

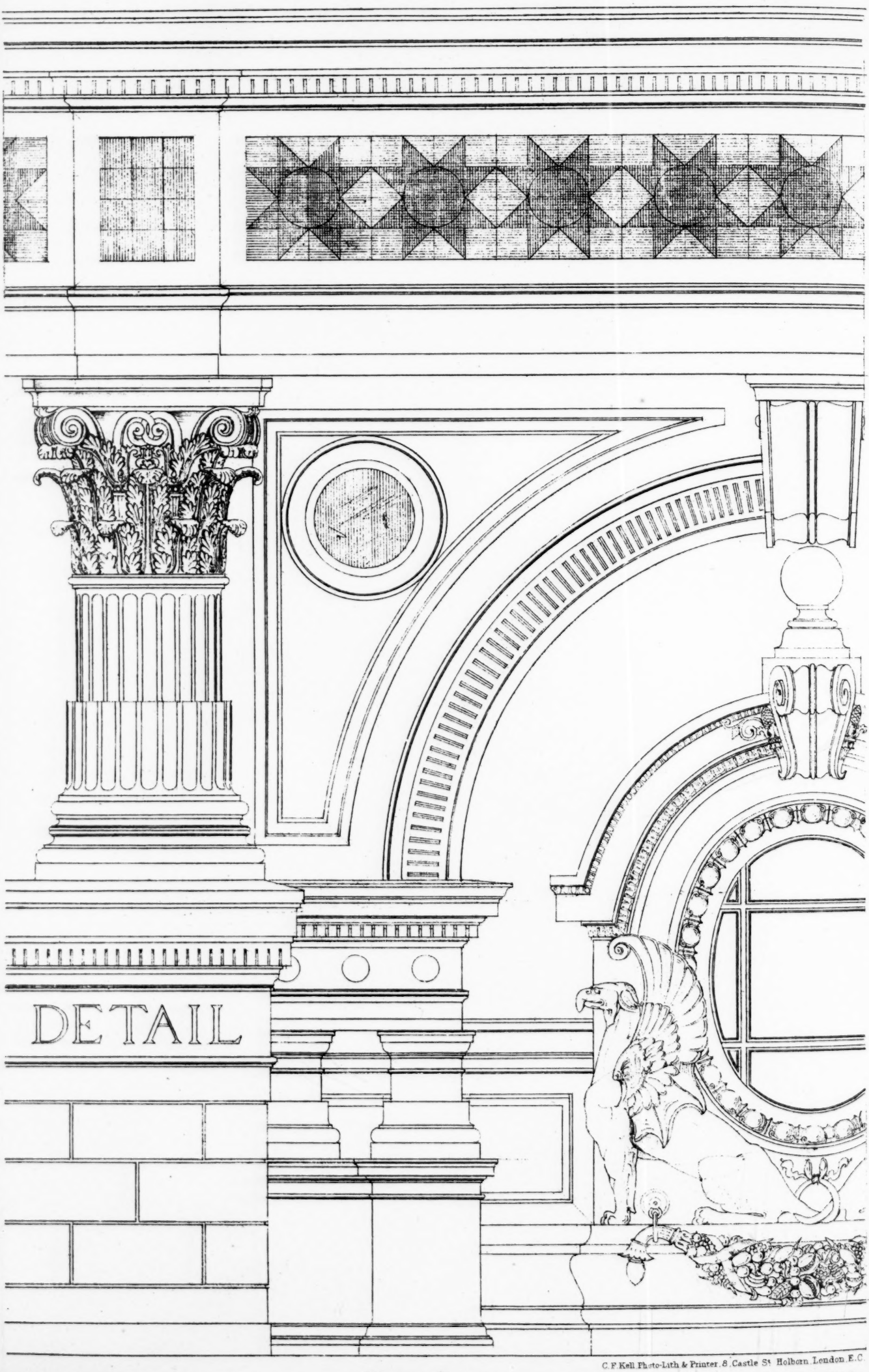
This church, near to his home, completed only by degrees, and avowedly the favourite of all his works, may be taken as the ideal of his aims. Not of great scale,—150 ft. long and 85 ft. wide,—nor possessing any unusual or startling feature, its composition is even and well-balanced, both in plan and elevation, within and without. The effect is thus just such as to give increased pleasure after a first acquaintance, and to allow itself to grow, the simplicity of parts, and the fitness, even richness, in the details of others, being most satisfactory,—never oppressive or forced, but consistent with a place of worship, as, indeed, it was till near its end.

In the busy West Riding, the early growth of the railway system furnished much employment to Mr. Hadfield's firm, and in association



PORTION OF THE LAW COURTS BUILDINGS, BRUSSELS.

The late Herr Poelaert, Architect.



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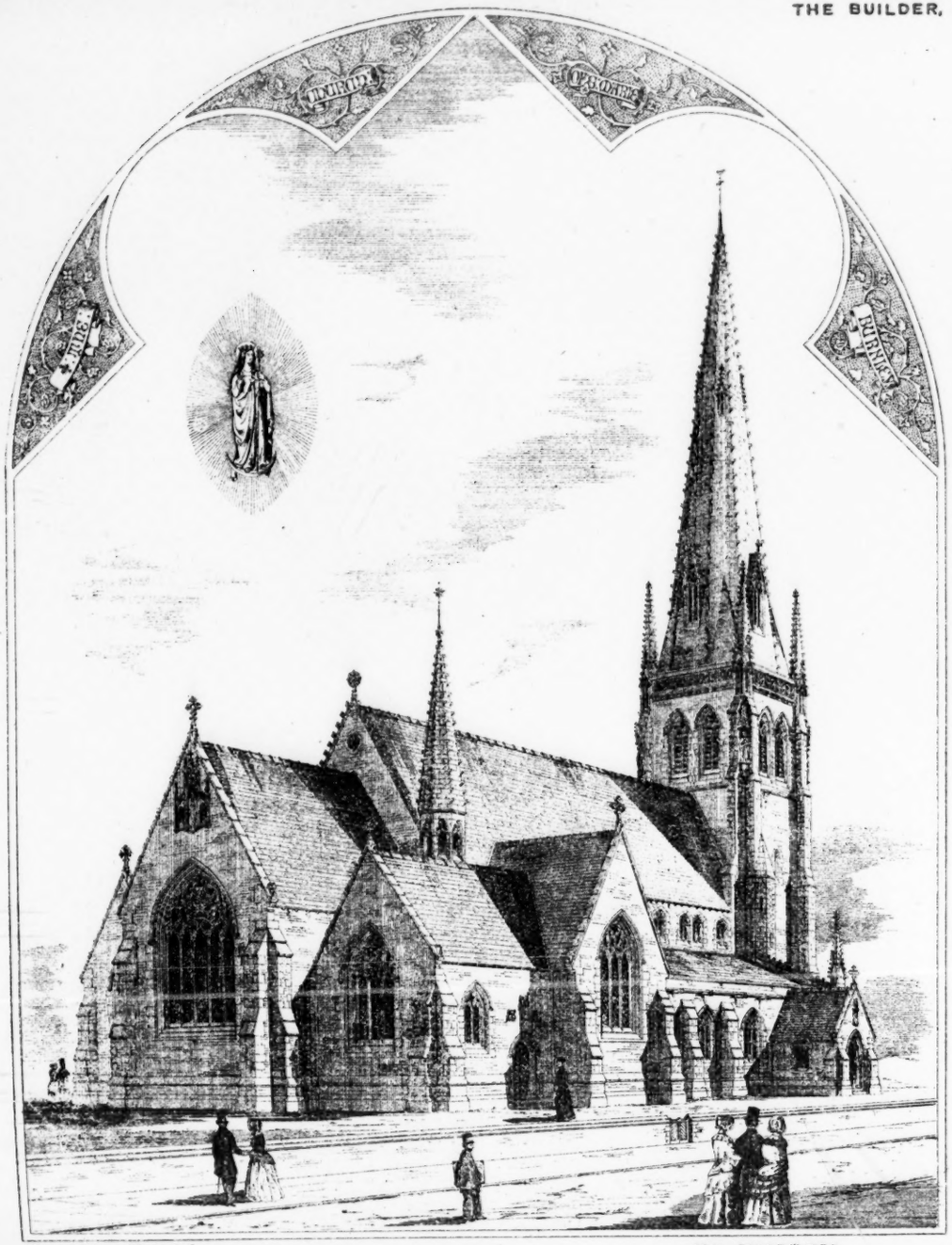
TITE PRIZE DESIGN, R.I.B.A.

EXTERIOR DETAILS.

(For General Design, see BUILDER, *March 28th).*

BY MR. J. A. CAMPBELL.



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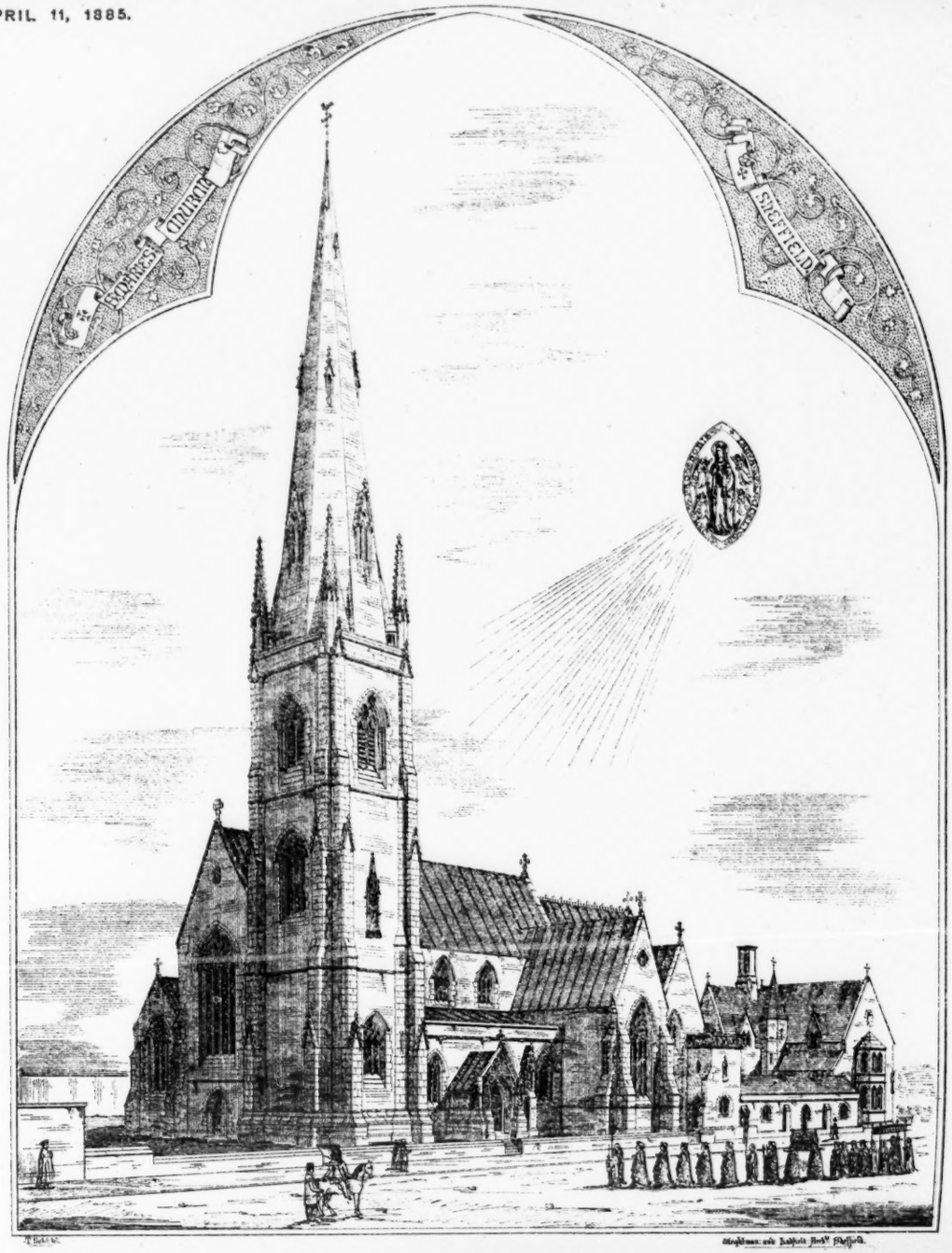
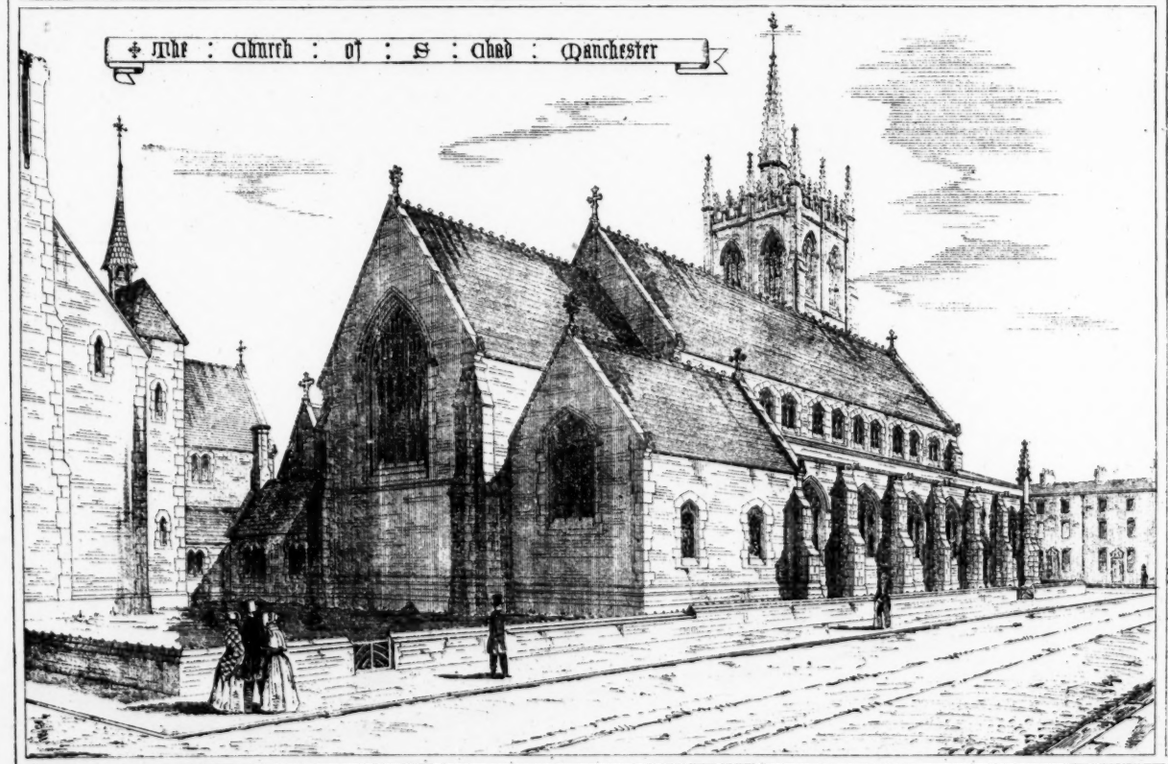
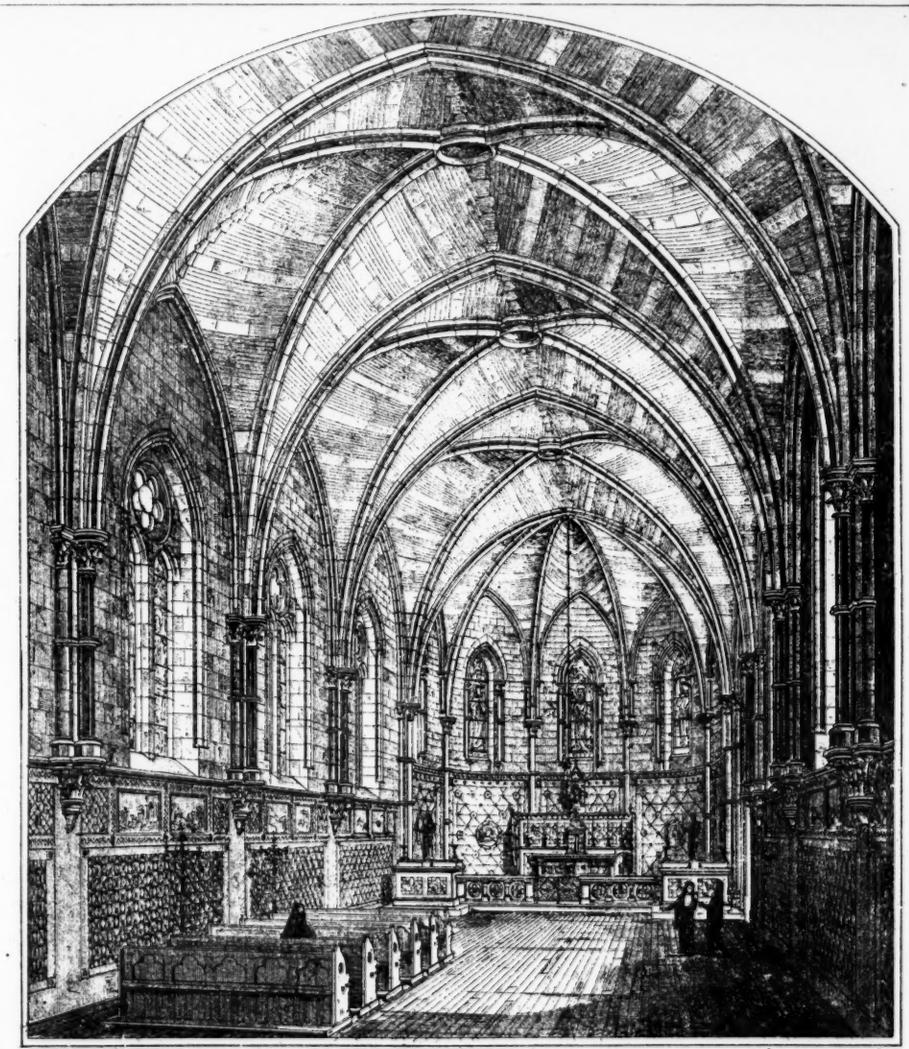
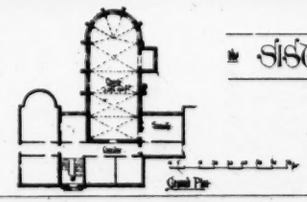


CHURCHES BY THE LATE M. E. HADFIELD, F.R.I.B.A.





CONVENTUAL CHURCH
MOUNT PLEASANT



SISTERS OF NOTRE DAME
LIVERPOOL

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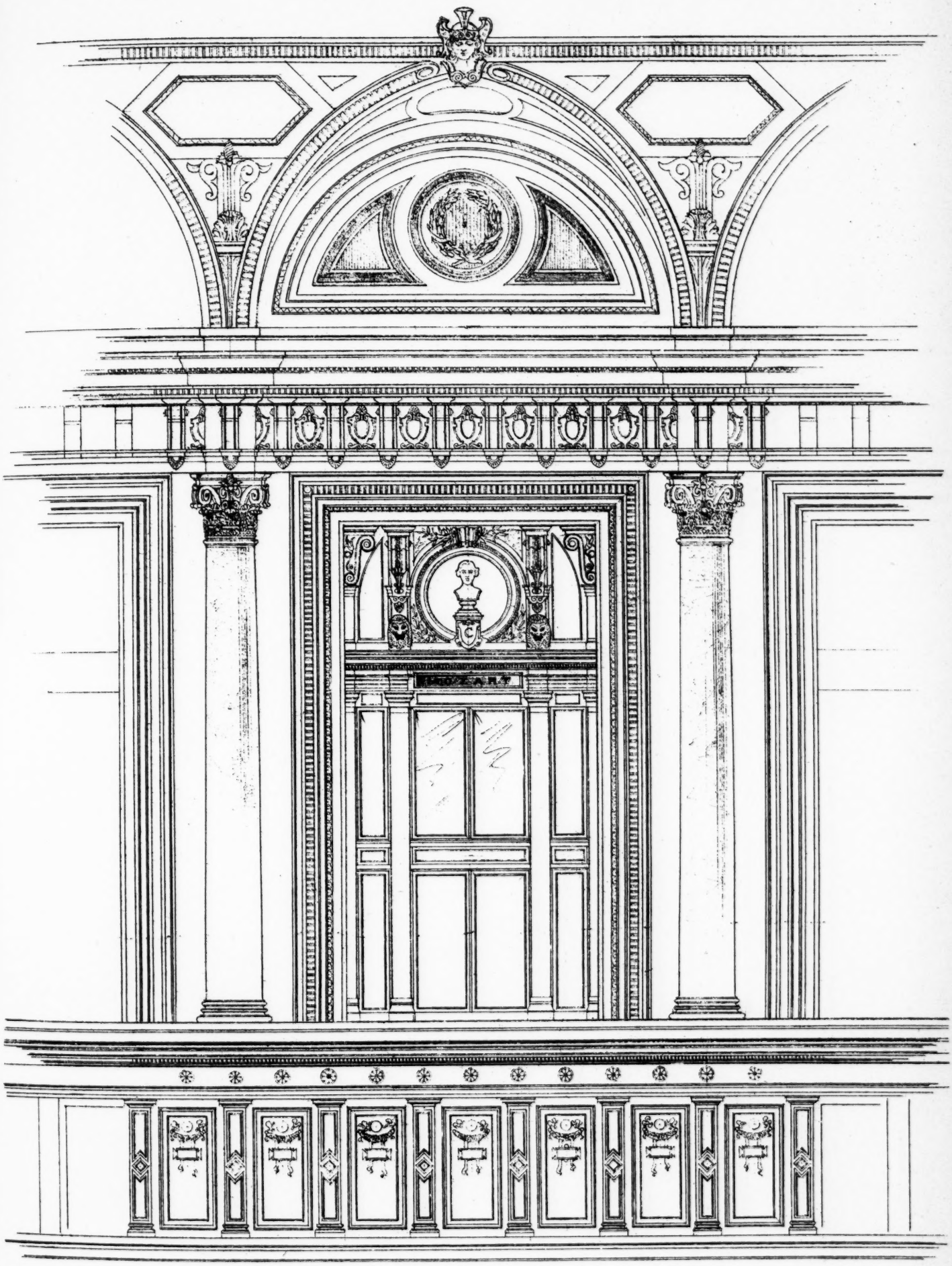
CHURCHES BY THE LATE M. E. HADFIELD, F.R.I.B.A.



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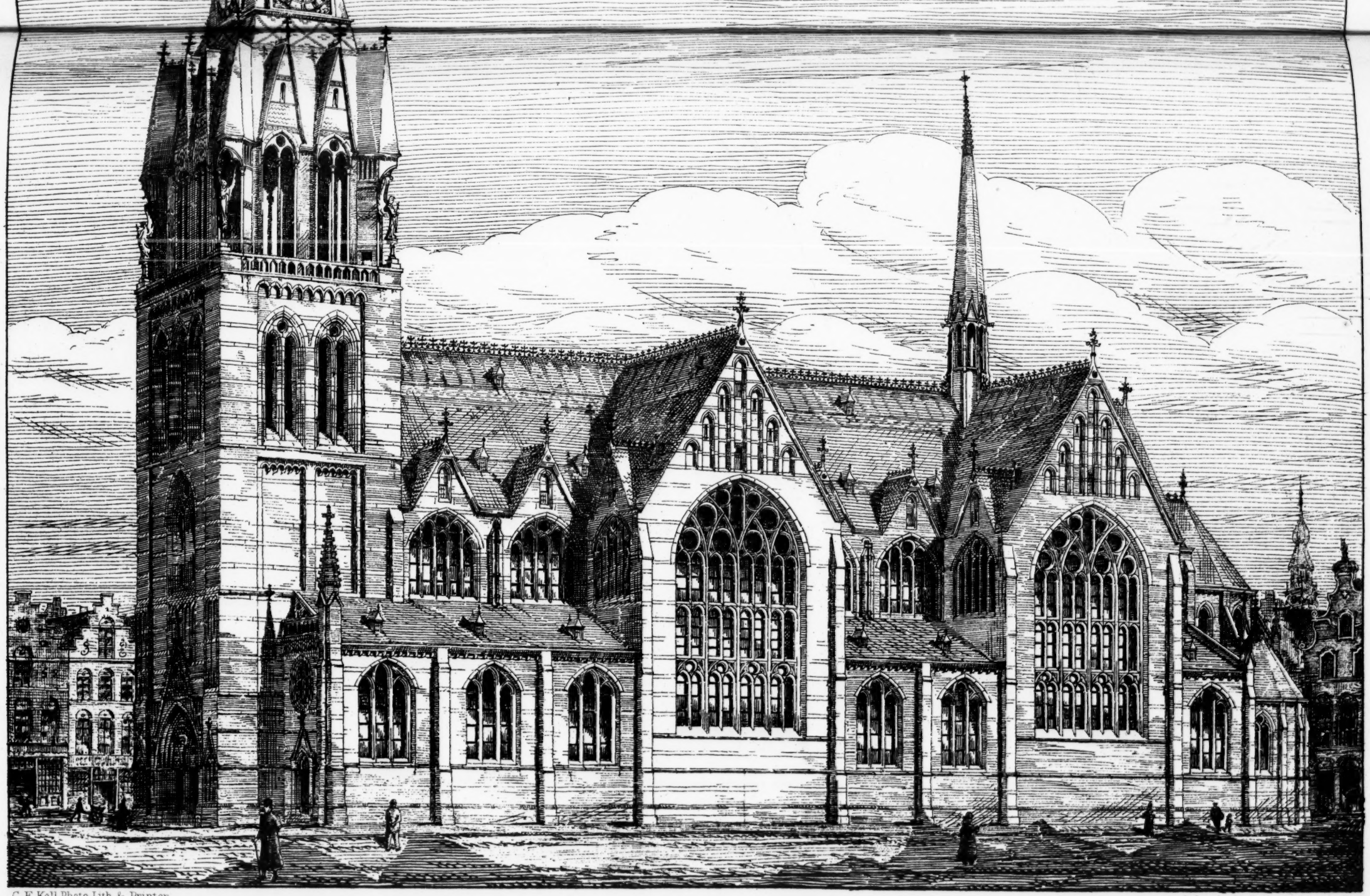
TITE PRIZE DESIGN, R.I.B.A. By Mr. J. A. CAMPBELL.

DETAILS OF PRINCIPAL ROOM.

(For General Design, see BUILDER, *March 28th).*

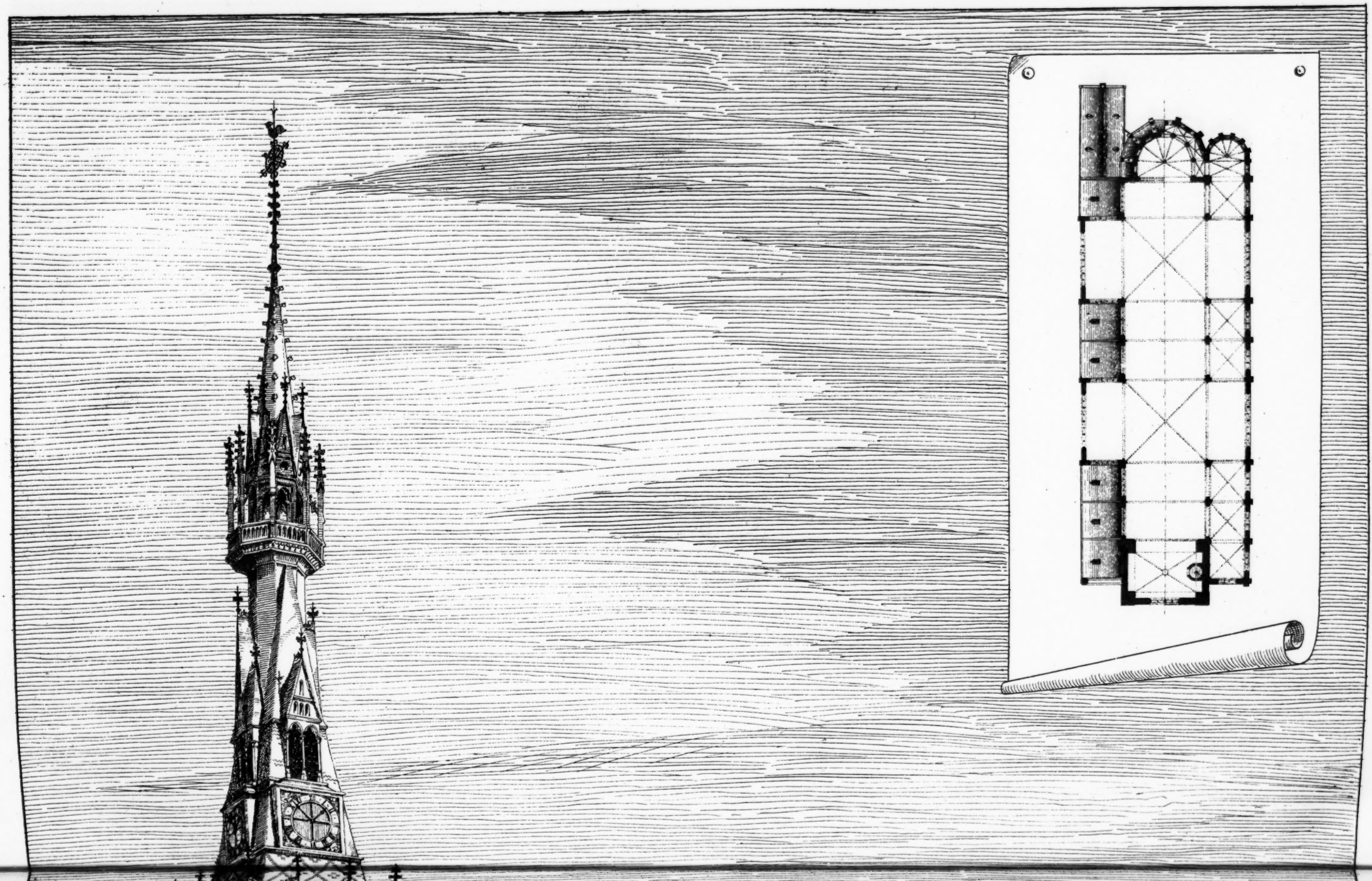


C. F. Kell Photo-Lith & Printer. 8 Castle St. Holborn. London. E.C

FRANK T. BAGGALLAY, DEL.

THE CHURCH OF ST. HIPPOLYTE AT DELFT.

HERR P. J. H. CUYPERS, ARCHITECT.



with Mr. John Fowler, the engineer, they designed the Gorton depôt, and various stations and works on large sections of the Manchester, Sheffield, and Lincolnshire Railway. These were followed by some important hotels built for this and the Great Northern Company,—the Victoria Hotel, Sheffield, 1860; the Railway Hotel, Grimsby, 1863; and the Great Northern Hotel, Leeds, 1865. This last commission, obtained in a limited competition, afforded scope for Mr. Hadfield's practical talent and matured experience. The plan is meritorious, and has proved to be well considered. As a design, the building is a very effective one. Profuse ornament is eschewed, and much judgment is shown in the application of detail, all of it suitable, and generally evincing originality.

Having practised alone for a few years, Mr Hadfield took into partnership, in 1864, his only son, Mr. Charles Hadfield, who had completed his education by passing through the student's grade of this Institute. With continued activity a number of civil and ecclesiastical buildings were carried on,—Bleak House, the residence of Mr. Fowler, the engineer, and Thornbury, for Mr. Mappin, M.P.; the Sheffield Club House, the banks at Chesterfield, Rotherham, and Mexborough; the Gas-office, the Drill-hall, and the Intake Public Cemetery, at Sheffield; the Custom-house at Grimsby; the Market-hall, Howden; and the Institution for the Deaf and Dumb, near Tadcaster, besides various houses, schools, churches, and convents, that at Mount Pleasant, Liverpool, being one of the more effective designs. Between 1859 and 1865 a gate-house, a chapel, and some monumental works were carried out at Arundel Castle; a more recent commission from the Duke of Norfolk to Mr. Hadfield being the Sheffield Corn Exchange, in 1878. This was among the latest works to which he gave serious attention. It is a large and richly-executed building, in the Tudor style, comprehending an hotel, the Norfolk estate-office, and other offices and chambers, with shops under, so planned as to enclose a central glazed court,—the corn-market itself.*

Many of our members have enjoyed the acquaintance of Mr. Hadfield, who joined the Institute as an Associate in its earlier years, and who had become in time one of the elder Fellows, and had served on the Council.

In professional, as in private life, Mr. Hadfield was always genial, tolerant of opinion, and popular, though able to hold and express his opinions with weight; and among his townsmen he bore a high character. He took part in advocating several public improvements, and was one of the founders of the Gentleman's Club. Another object which he strenuously worked for was the School of Art, and providing a home for it in Arundel-street, Sheffield. After holding the office of President for three years, he continued to be a member of the Council.

Mr. Hadfield died on March the 9th of the present year at his residence, Knowl House, near Sheffield, at the age of seventy-two years."

DETAILS OF THE "TITE PRIZE" DESIGN.

We give this week two of the sheets of detail from the design by Mr. J. A. Campbell for "A Pavilion at a fashionable Watering-place," which gained the "Tite Prize" this year at the Institute of Architects. The general elevation and plan we gave in the *Builder* for March 28. The first page shows part of the external elevation, in which the author has contrived to impart to those time-honoured "properties," the griffin and the "swag," rather more than their usual effectiveness: the second page shows a portion of the interior of the music-room, the detail of which is elegant and suitable.

"Things one would rather have left unsaid."—Fair visitor at a studio on "Picture Sunday":—"Thanks so much for giving me this opportunity of seeing your Academy picture, Mr. McDuffer,—and good bye!" *He.* "Delighted to have seen you. I suppose you are now going to see Smythe's picture, over the way?" *She.* "Oh, no! I shall see that *at* the Academy, you know!"—*Punch.*

* Several of the buildings enumerated have been illustrated in the pages of the *Builder*. Of the Sheffield Corn Exchange we gave a large view and plan in our number for November 12, 1881. Another important and effective building, being the new offices for Messrs. Pawson & Brailsford, printers and lithographers, Church Gates, Sheffield, was illustrated in our pages by a large view and plan more than a year ago, viz., February 23, 1884.

COMPETITIONS.

Public Baths for the Borough of Stockport.—The award in this competition was made some months since, when the design submitted by Mr. J. C. Prestwich, architect, Leigh, near Manchester, was placed first, subject to the estimates for the work being obtained by the Corporation within the stipulated sum of 5,000*l.* given in the "Instructions to Competing Architects." The Sanitary Committee of the borough met on the 6th inst., when tenders were opened, the whole of which will be found in our list of tenders, the lowest and accepted tender being 4,865*l.* The work will be at once proceeded with, under the supervision of the architect.

Co-operative Stores, Jarrow-on-Tyne. — The building committee of the Jarrow Industrial Co-operative Society, having invited architects to send in competitive plans for their new premises in Hill-street, have received ten sets of drawings, from which they have selected those bearing the motto, "Commerce," by Mr. J. W. Hanson, of South Shields and Jarrow, and have appointed him architect for carrying out the work.

New Church Schools, Accrington.—It having been decided to erect new schools in connexion with the above church, in Hargreaves-street, Accrington, the Committee invited the following architects to submit designs, viz.:—Messrs. Maxwell & Tuke, of Manchester; Messrs. Stones & Gradwell, of Blackburn and Accrington; and Mr. George Baines, of London. The plans sent in have been on view for the last fortnight, and, on the 26th ult., a meeting of the members of the church was held, at which the recommendation of the Building Committee, that the design submitted by Messrs. Stones & Gradwell be accepted, was confirmed. The building will be erected on the site of the present school, which, however, will be enlarged by the acquisition of three houses adjoining. It is expected that the cost will be about 3,500*l.* The design chosen shows two entrances,—the main entrance in Hargreaves-street and one in Chapel-street. Accommodation is provided on the ground-floor for 304 girls, 176 infants, and 72 babies, with convenient cloak-rooms, lavatories, &c. There is also a private room for the mistress. A tea-making room is also provided, having a lift for communication with the upper floor. By raising a revolving shutter between this room and the adjoining class-room, a large room is obtained for cookery classes. There is ample playground accommodation, part of which is under cover. On the first floor there is a large assembly-room containing 337 square yards (exclusive of gallery at one end) and approached by staircases from both streets. There is also a lecture-hall containing 151 square yards, a large committee-room, and ante-room for use in connexion with the platform; also an ante-room to serve as cloak-room both for lecture-hall and assembly-room. For Sunday-school purposes the assembly-room can be divided into a number of class-rooms. The style adopted is Gothic of a simple type.

ARCHITECTURAL SOCIETIES.

Birmingham Architectural Association.—The seventh ordinary meeting of the current session was held at Queen's College, on the 31st ult. The Vice-President, Mr. W. H. Kendrick, was in the chair. A paper was read by Mr. H. Clere on "Artisans' Dwellings, the Artisans' Dwellings Acts, and cognate Acts of Parliament." The lecturer advocated the adoption of the flat system in preference to the vertical system for artisans' dwellings, and exhibited a number of plans and drawings of proposed and existing buildings in support of this view. A vote of thanks, proposed by Mr. F. Bailey, and supported by Messrs. Franklin Cross, Victor Scruton (Hon. Sec.), H. H. McConnal, T. W. F. Newton, and the Vice-President, was unanimously awarded to the lecturer. After a lengthy reply by Mr. Clere to many points raised in debate the meeting terminated.

Edinburgh Architectural Association. — On Saturday last about seventy members of this Association left Edinburgh by train for Roslin. The scene of the excursion was Roslin Chapel and Castle, and the party were under the leadership of Mr. Andrew Kerr, who read a paper. The lower chapel, which might be regarded as a separate building, with a priest's chamber on the south side, was, he remarked, said to have been erected by Lady Elizabeth Douglas, and dedicated to the Virgin Mary. The upper chapel, or collegiate church, was founded by Sir William St. Clair, third Earl of Orkney, on St. Matthew's Day (21st of September, 1450), and dedicated to St. Matthew. The present chapel was intended for the choir of the complete building, which had been founded to its full extent. The foundations had been traced a considerable length; but those of the cross west wall were removed about the end of last century. The western part or nave appeared to have been intended to embrace a central, with a double aisle on each side, after the manner of the nave of Toledo Cathedral. The choir was confined to a single aisle on each side of the central one, and a double aisle at the east end, more properly, a retro-choir, embracing four chapels. The entire arrangement of the choir was almost a repetition of that of Glasgow Cathedral, only Roslin Chapel had been more carefully studied in the elaboration of the ornaments. The plan of thirteen of the pillars was the same as that of those in the nave of Següenza in Spain. One special peculiarity of Roslin Chapel was the "horizontal arches" over the side aisles. In these, however, safety arches were concealed by a face ornament on each side. In some parts of the chapel there appeared indications of representations of religious or other allegories, and in the western compartments of the roof Scriptural teachings were plainly represented in the sculptures. The entrance to Roslin Castle had originally been protected by a trench and drawbridge, which were replaced by a stone arch about the end of the sixteenth century. The castle formed an irregular oblong square, with gardens at the south and east sides. On the left of the court was the "Lamp" tower, known by that name on account of signal lights having been displayed from it. The keep or donjon tower at the south-west corner was erected towards the end of the fourteenth century, and the buildings on the west side connecting the towers were built about the middle of the fifteenth century. These contain domestic apartments and a chapel. The buildings existing upon the north-east side were erected between 1597 and 1622, and were arranged for additional servants' accommodation, including a great hall with a fireplace of characteristic design.——At the usual fortnightly meeting of the Association, held on Monday evening last, Mr. D. Purves read a paper on "House Drainage and the Sanitary Arrangements connected therewith." Referring to the question of water-storage, he recommended that cisterns should be placed as near as possible to where the water was to be drawn, and be of such dimensions that the water would be renewed each day; that each cistern should be fitted with plug-valve, and the bottom so sloped that this valve would entirely empty the cistern; that this valve should be connected with pipe and trap to waste-pipe arrangement, and have pull and cord in an accessible position, that the cistern might be emptied without trouble at any time. When it was necessary to have a large cistern a great benefit would be derived by having a division fitted in it, self-acting, with syphon arrangement between the two compartments, so that the whole water could be emptied out periodically instead of being mixed up from day to day. All cisterns should be carefully covered and placed in such positions and so fitted that the unskilled might inspect them conveniently.

Presentation to Mr. Thomas Seward.—At a meeting held at the Crown Baths, Kennington Oval, a few days ago, Mr. T. Seward, who is leaving the firm of Messrs. Higgs & Hill, of Crown Works, South Lambeth, was presented by them with a purse of gold, also with an album from the workmen, while a black marble clock and ornaments, inlaid with malachite, was presented by the foremen and clerks. The clock bore the following inscription:—"March 27th, 1885. Presented to Mr. Thomas Seward, by the foremen and clerks in the employ of Messrs. Higgs & Hill, together with a purse of gold from the firm, as a token of esteem and regard, at the close of thirty-five years' service with them and the late Mr. William Higgs." The annual entertainment afterwards was given by the firm to their *employés* and their wives, and of whom upwards of 1,000 sat down to a substantial meat tea. Such entertainments bespeak good feeling between masters and men.

REARS OF HOUSES.

SIR,—I think a little consideration will show that the "consensus of opinion" you mention in your issue of the 28th ult. [p. 464] will not be the opinion of the Courts, and for the following reasons. It is an established rule that no Act of Parliament, or any part thereof, can be annulled, except by express language in a *subsequent Act*, unless the wording of the subsequent Act leaves no doubt as to the cancelment.

Now, in sec. 29 of 18 & 19 Vic., c. 122, there are two classes of houses dealt with: those whose rooms can all be lighted from a street or alley, and those buiidings which cannot. The Metropolis Management and Building Acts Amendment Act, 1882 (45 Vict., cap. 14), sec. 14, does not make any mention of any distinction of buildings, but deals with the area at the back, beginning by an increase of 50 ft. on the Building Act before mentioned.

Of course, if the Amendment Act were not an amendment Act, the language "every new building" would clearly mean every building; but as in the Building Act there are two distinct classes of houses, it appears as if it would commend itself to the Courts that buildings lighted and ventilated from a street or alley were not intended to be interfered with, but only those buildings which are lighted in part from the rear; and this really seems the intention, because the amending Act follows the wording of the Building Act, only giving *increased* air space.

You will notice, in confirmation of this view, the final words in the paragraph in the Amendment Act distinctly state that the provisions of this Act shall be in *addition* to, and form part of, the rules of the Building Act. Now the increased space is an addition, and there is no word indicating a radical change like the *abolition* of a right to build premises which can be lighted entirely from the street or alley.

I had my attention called some time ago to this paragraph in a responsible manner; for I received instructions to value for a mortgage a terrace of shops which had been erected after the passing of the Amendment Act, and after much consideration of these clauses I advised my clients that the buildings were in conformity with the requirements of the Act.

All will admit the importance of removing all doubt; and, I trust, now you have called attention to the Acts, such a result will ensue.

BANISTER FLETCHER.

*** We think that the construction put upon the Acts in our article was the right one, and that the maxim "Leges posteriores priores contrarias abrogant," which specially governs the construing of legislative enactments where they are opposed to each other, applies, and that buildings erected after the Act of 1882 must have the increased area, whether they can be lighted from the street, &c., or not. The rules of the Building Act do not affect the question, as they apply to other matters not within sec. 29 of the Building Act.

THE PROPOSED "GORDON" HOSPITAL AT PORT SAID.

SIR,—If my memory serves me aright, a house was purchased in 1882 at Port Said from Prince Henry of the Netherlands, for "strategic purposes," at a cost of 70,000*l*.

If not made use of militarily,—which I fancy is not likely to be the case,—why should not this mansion be utilised for the memorial in question? I feel sure the nation would approve of its being devoted to such a purpose, and it would help to make the money now being subscribed go further than in the erection of an entirely new building.

C. E.

THE LOWEST TENDER.

SIR,—Whatever may be the legal bearings of the question, I cannot agree as to the expediency or the morality of rejecting the lowest tender, except upon grounds which might be held to justify the act, such as incapacity, or want of position, or previous bad work, which might be even subject of public inquiry if demanded by the builder. Much clamour has been made for many years by the public as to the dishonesty of builders. My belief is, they are as honest as any other class of tradesmen. But the unfair dealing of employers will not tend to make them retain their honesty; and I for one do not see the fairness of making a professedly public offer, equally open to all alike, with the foregone determination to employ some one else, "from neighbourly feeling," if only by their professedly public offer they can beat him down to the lowest penny.

I have had the lowest tender rejected from the want of capacity and position in the man tendering; and again from an attempt to revise the tender after being sent in. If any one should wish to ensure the employment of a proper man, it is easy enough to *invite* only such as will satisfy their requirements. Anything like jobbery will only disgust good men, and architects who sanction it will find themselves in a position to obtain only second-class tenders. In a recent case I was on the point of rejecting the lowest merely on account of its being so low that I feared the work could not be properly done. I now find that I should have lost a most capable and fair-dealing man. The highest was 6,600*l*., the lowest 4,860*l*.

WM. WHITE, F.S.A.

FIREPROOF FLOORS.*

SIR,—We thank you for the insertion in your number of Feb. 28th [p. 321] of our letter on this subject, and as the question raised by your note is one of considerable importance, we are writing again in the hope that the matter may be thrashed out, and a satisfactory conclusion arrived at.

In your note you state that a beam in good concrete requires no top flange.

This opinion, we take it, is founded on the supposition that the concrete and iron form together a compound beam, in which the former takes the compressive, and the latter the tensile strain. If this were so, a series of round tie-rods under the concrete would fulfil the conditions of stability. But when spans of as much as say 16 ft. have to be considered with a thickness of only 6 in. of concrete (by no means unusual dimensions), the impossibility of carrying out such a construction becomes obvious.

Regarding the matter in another light, the weight of the concrete alone represents, in many cases, a large proportion of the total floor load to be supported; and it will be admitted that in making fireproof floors in the usual way, the whole of this load must be carried by the iron beams acting as girders and not as ties, because the concrete before it has set and whilst straining the iron by its weight cannot possibly afford any sensible resistance to compression.

We should also be glad to know your reasons for suggestng that a tee-iron is more effective than a girder section of equal area and weight.

If it could be shown that rolled iron joists with unequal flanges would reduce the cost and increase the efficiency of fireproof floors, we should be foremost in advocating their use; but no such advantages are now apparent to us; and, regarding the matter merely in its mercantile aspect, we should like to be assured of a sufficient demand before providing a supply with which to meet it.

ROWNSON, DREW, & CO.

*** Our "reason" is simply our knowledge of the fact that concrete beams, with imbedded iron bottom flanges *only*, have been tested to very severe cross strains at Messrs. Kirkaldy's testing works. The sections so tested included various arrangements of iron and concrete, among them the precise one to which our correspondents refer, of a series of round tie-rods embedded in the lower portion of the concrete beam. We have been permitted to refer to Messrs. Kirkaldy's books to confirm our recollection, but the results are not available for publication here. It is, of course, quite possible to have other tests made for the special object of investigating the point, and we should think it quite worth while.

COLLAPSE OF A LARGE-SIZED SEWER.

SIR,—A case of the above has lately happened in the execution of the Dorking sewerage works, and since, although they are not without precedent, such cases are happily rare, particulars doubtless will be of interest to your readers. The pipes were 21 in. in diameter, and 1¾ in. thick (Jennings's make), and were first-class specimens of stoneware pipes. They were laid in a trench 13 ft. deep and 4 ft. 6 in. wide. The subsoil strata were alluvial,—upper green sand and gault clay; the latter was nobbly and full of water when the trench was excavated, but was got into a dry good condition by means of small agricultural drains laid as subsoil pipes 6 in. below formation level on each side of the trench. The sewer-pipes were laid in the ordinary manner on their barrels, with joint holes for the sockets, which the latter probably touched throughout, but upon which they had no undue bearing. The joints were Stanford's patent (the chipping for which doubtless slightly weakened the pipes), over which a band of clay was worked to prevent leakage. The mode of filling-in after the pipes were laid, carried out in accordance with the specification, was unique. The finest material was selected (sifted, if necessary), it was laid to a height of 2 ft. above the highest parts of the first three pipes; other similar material was then thrown upon that and carefully pushed along on to the next pipe, and so on, no ramming whatever being permitted until this fine soft filling material was 2 ft. above the highest parts of the pipes. The remainder was then thrown in and rammed, there being two rammers specified to one filler. The pipes being thus without lateral support (for the loose filling could have been of no possible use in this respect), and practically arches without abutments, it is scarcely surprising that every pipe collapsed as far as the ground had been filled in. The ramming applied to the last 9 ft. of filling consolidated it into one mass, 4 ft. 6 in. wide, which settled bodily. There were 4 ft. of soft unrammed filling at the sides of the pipes, and only 2 ft. on top of them, so that when the mass subsiding had compressed the soft filling on the top of the pipe to its greatest density, the filling at the side was only half compressed; consequently, 13,000 lb. of earth ultimately settled upon each pipe, whose crushing strength was not equal to one-half that weight.

IGNORAMUS.

* The publication of this letter has been unavoidably delayed.

TEMPLE BAR.

SIR,—I think the site suggested in "Delta's" letter of the 30th ult. [p. 497, *ante*] for the re-erection of Temple Bar a most excellent one, and in every way more appropriate than carting it away to Epping Forest, where it would be entirely out of its element. In the Temple it would still be "Temple Bar" and amid the most interesting associations, historical and civic; more than this, it would still be in the "City."

There is no difficulty, as we see in this case, in finding suitable sites not only for Temple Bar, but for the Burlington House Colonnade and York Gate, should it be found necessary to disturb the latter; the difficulty is in getting the proper authorities to do the work. With this view one is glad to welcome such letters as "Delta's," and the assistance of every one who cares for the preservation of such interesting monuments, and I sincerely echo his trust that you will kindly exert all your influence in favour of the movement so cordially taken up by the Institute the other night.

J. M. BRYDON.

LIME-MORTAR GAUGED WITH PORTLAND CEMENT.

SIR,—I notice that some builders are now using lime-mortar gauged with Portland cement in connexion with brickwork, and am informed that the work is stronger than when ordinary lime-mortar is used. I consider that the setting properties of the two materials when so mixed are opposed to each other, and cannot understand how any permanent cementing agent can result, and would be glad to receive further information.

MORTAR.

CHELSEA VESTRY-HALL COMPETITION.

SIR,—Being one of the competitors in the above I think it only right, in fairness to others who may not have the opportunity of viewing the drawings (which are open this week to public inspection at the Cadogan Club, next Vestry Offices), to draw their attention to the fact that two out of the three sets, viz., Nos. 14 and 26, chosen by the assessor, have not complied with the instructions, having sent in coloured drawings, although it was specifically laid down that the "drawings are to be finished in line in Indian ink."

I wish to ask you, Sir, what good instructions are if they are to be flatly ignored? And also of what use are "Professional Assessors," who allow such things in dire contradiction to the same, as I have mentioned?

I enclose my card.

FIAT JUSTITIA RUAT CŒLUM.

*** The two competitors referred to kept, if we remember right, the spirit of the instructions, which referred mainly to the getting-up of the elevations. One of them did send a coloured detail of a bay of the large room, but we should hope that drawing acted against his chance of selection rather than in favour of it, apart from the question of regulations. We do not think the injustice is more than a merely technical one.

"STREET ARCHITECTURE OF LONDON."

SIR,—I have read the correspondence that has taken place in your columns [pp. 465, 498] in connexion with the above as applied to the new street from Bloomsbury to Piccadilly, which is now being formed by the Metropolitan Board of Works.

That the entrance to this new street at the Bloomsbury end should be so greatly disfigured must be a matter of regret to all who have the slightest respect for architecture, leaving out of the question the dangerous curve there will be in this important thoroughfare.

It would have been thought that nothing less than insurmountable difficulties could have induced the Board to have so much marred what might have been one of the finest streets in the metropolis. But, from the letter of "A Large Ratepayer" in your last issue, it appears that the Board had every

facility afforded it for carrying out the work in a satisfactory manner.

That a serious blunder has been committed it is clear, and it is not to be wondered at that the parishioners, &c., feel themselves much aggrieved.

ONE OF THEM.

ARCHITECTS *v.* CORPORATIONS.

SIR,—I have read the decisions in Hunt *v.* Wimbledon Local Board, and Young & Co. *v.* Leamington Corporation, and as it is a question of interest to the whole profession, shall be much obliged to you, or to some readers, if you or they can inform me whether that law applies to all public bodies that deal with public money.

DUBIOUS.

PROVINCIAL NEWS.

Market Harborough.—Last week Major Tulloch, R.E., held an inquiry into an application by the Market Harborough Local Board for a provisional order to purchase land in the parish of Husbands Bosworth for the purpose of a water supply for this united district. Mr. Rawlins and Mr. Clark represented the Local Board; Mr. Owston and Mr. Thomas watched the proceedings on behalf of the Canal Company; and Mr. Wratislaw and Mr. Stewart were present in the interests of the Rugby Board of Health. Mr. Owston produced the Grand Junction Canal Act of 1810, showing that the company had the right of water within a thousand yards of their property. He intimated that it was the intention of the company to resist the adoption of the proposed Walton Holt scheme. Mr. Wratislaw pointed out that the proposed scheme, if carried out, would interfere with the Rugby water supply, and stated that it was the intention of the Rugby Board to oppose the scheme. Mr. Rawlins, Clerk to the Harborough Board, and Mr. Everard, of Leicester, engineer, contended that no one had a prescriptive right to water taken out of the bowels of the earth. Several persons held that the supply of water was in some instances cut off, and in others contaminated by the construction of the large sewers through the town. Major Tulloch laid great stress on the fact that Dr. Grant's report stated that there were in the Local Board district no fewer than 144 houses without water supply. Some doubt was expressed as to the truth of the statement, but the inspector pointed out that a water supply in the legal sense meant a supply on the premises of pure water. He mentioned that water might look beautiful and sparkling, and still be utterly unfit to drink. They could not tell whether or not it was dangerous without analysis. The Inspector, in answer to a question, said Mr. Everard, who was a very careful and painstaking man, told him that he had examined the whole district with a view to obtaining a water supply for the town, and as near to it as possible, and he was sorry to say that he had come to the conclusion that there was no available supply nearer than Walton Holt, which was about seven miles away. If, however, any one could propose a better one and nearer the town he would be glad to consider it.

Bedale.—New kennels for the Bedale Hounds have been provided on the premises known as the Low-street Stud Farm, which were acquired for the purpose. The buildings which formerly comprised the stud groom's cottage, loose boxes, and covered sheds for brood mares and foals, with chambers for provender above, are now converted into huntsman's and stud groom's houses, quarters for the helpers, corn, hay, and straw chambers, and saddle-room, with stabling for twenty-two horses, and lodging-rooms for the dog and bitch packs, whilst another wing, containing cooking-house, feeding-house, three spare kennels, with rooms for the whips, and meal-chamber above, has been newly built, and a room for drying saddlery, &c., a spacious washing-box for horses, and a flesh-house or larder have also been added. A row of wooden houses, for bitches with puppies, given to the Hunt by Major Dent (the late master) has been removed from the old kennels and placed in a sheltered and dry situation, within a neatly-fenced grass yard in the corner of the kennel field, near at hand. Before commencing the alterations and additions required, the committee commissioned Mr. Henry Walker, architect, of Whitby, to visit Lord Middleton's kennels at Birdsall, near Malton, also other kennels, and when the plans were completed tenders were advertised for, and the contract for the work was let to Messrs. G. & B. Mackenzie, builders, and J. Todd, joiner, of Catterick, Messrs. Mattison, of Leeming Bar, doing the ironwork, and Mr. William Wray, of Catterick, the painting.

Plymouth.—A West-country paper says that Mr. John Pethick, builder and contractor, of Plymouth, has ceased to be the Government contractor for repairs at the Royal William Victualling Yard, Royal Marine Barracks, and Royal Naval Hospital at Stonehouse. For a considerable number of years Mr. Pethick has been fortunate enough to secure the triennial contract for the repairs in these establishments and also in the dockyards at Devonport. But this year he loses both contracts. The work is to be done by the Director of Works Department at the Dockyard by Government instead of contractor's labour, contracts being entered into only for the materials. In the Hospitals, Victualling Yard, and Barracks at Stonehouse the old system of contracting for labour and materials is to remain in force, but the tender of Mr. Marshall has been accepted for the three years, commencing April 1st, instead of Mr. Pethick's. Why the Admiralty should continue the old system for the three establishments at Stonehouse, and abolish it for those at Devonport, is not, says the paper in question, very clear.

Oxford.—The venerable clock of New College, which has for so many centuries sounded the hours at this College, having become unfit for further service, is now replaced by one of new and superior construction, from Mr. J. W. Benson's Steam Clock Factory, on Ludgate-hill. Graham's dead-beat escapement, a compensated pendulum, and all the latest improvements have been introduced. The clock will strike the hours on a great tenor bell of 1 ton 3 cwt., and chime on eight smaller bells the well-known Oxford quarters.

Harrogate.—It is proposed to rebuild, on an enlarged scale, the Harrogate Bath Hospital, at a cost of about 15,000*l.*, the old structure, built sixty years ago, having become too small and unsuitable for the demands made upon it. The site now comprises an area of four acres, and it is proposed to provide accommodation for 100 resident patients.

CHURCH-BUILDING NEWS.

Kingsbury.—Kingsbury Church, Middlesex, which has hitherto escaped the fate of suburban churches, is about to be enlarged and restored, at the instance, it is said, of the Ecclesiastical Commissioners, who have refused to divide the parish until the old church has been enlarged. The church is remarkable for its extreme simplicity, being a mere parallelogram on plan, about 70 ft. long by 18 ft. 6 in. wide, without aisles or chancel. It is almost entirely without decorative features, but impresses by its absence of pretension. It retains its original roof, which is ceiled and is, apparently, in good preservation, if one may judge from the firm line of the ridge externally and the general condition of the slating. The walls are of flint, with fire-stone quoins, and are coated with rough-cast, portions of which have been removed in places, it would seem, with a view to its entire removal. It is to be hoped, if there is such an intention, that it will not be carried into effect, as it will certainly render the church damp. On the south wall, near the altar, is a small brass, removed from a ledger in the centre of the nave, to Thomas Scudamore, described as a servant of Queen Elizabeth and King James for forty-seven years, who died in 1626. On the opposite wall is an upright ledger with a brass, to the memory of John Shephard, knight, who died in 1520, with effigies of himself, his two wives, and their eighteen children. There are marble tablets on the north wall to a Countess of Mansfield, who died in 1860, and her daughter, who died in 1880, and were buried in the church, and a similar tablet to Lady Vernon, who died in 1853. Dr. Stukeley, in his account of the Brill, prefixed to his "Iter Boreale," supposes that the church stands within the site of a Roman camp, which was Cæsar's second station after he had passed the Thames. Lysons asserts that the name of the place denotes a royal residence,—perhaps, of some of the Saxon monarchs. It is certainly a place of great antiquity, Edward the Confessor having made a grant to Westminster Abbey of one-third of the fruit growing in his woods there.

Manchester.—On Easter Eve the reredos erected in St. Matthew's Church, Ardwick, Manchester, in memory of the first and late rector, was unveiled immediately before the evening service. The central feature is a cross of white alabaster, 6 ft. high, with a back-ground of red veined marble, and which stands under a boldly-projecting canopy supported by shafts. At either side of this central cross and canopy are two arches with back-grounds of coloured alabaster, and which contain carving emblematical of the eight Beatitudes. On each side of the head of the canopy are five cusped arches. A battlemented cornice completes the structure at the top. Immediately above the Communion-table is a shelf of red marble; and beneath the foot of the cross are carved the words "Till He Come." The narrow spaces between the reredos and the north and south walls of the sanctuary are filled with a diaper of terra-cotta and stone. The design has been made by Messrs. Medland & Henry Taylor, architects, of Manchester. The work has been carried out by Messrs. Earp & Hobbs, under the superintendence of the architect.——A carved oak pulpit, and lofty pyramidal canopy, have recently been placed in St. Paul's Church, Manchester. They have been designed by Messrs. Medland & Henry Taylor, of Manchester, who suggested the canopy, as a sounding-board was necessary to enable the preacher to be heard at all, and also to relieve a certain baldness in the appearance of the interior of the church.

Holbeck.—The Church of St. Matthew, Holbeck, after having been closed during upwards of three months for alterations and redecoration, was re-opened by the Bishop of Ripon on Saturday last. Holbeck Church is an edifice capable of accommodating more than 1,000 worshippers. Prior to the alterations it was furnished with the old-fashioned, uncomfortable, and unsightly straight-backed pews, in five of which there were tables. The entire body of the church has now been seated with open pitch-pine benches of a uniform size, the seats being covered with carpet. The windows in the nave have been reglazed, and the walls painted in light colours so as to relieve the interior of its heavy appearance. Formerly the gallery ran to the chancel opening, but now the ends are rounded off, with the result that a considerable amount of additional light is secured. The pulpit has been brought out of the chancel and placed against the wall at the end of the gallery on the left-hand side. The gallery front has been painted and all the pews in the upper part of the church. The decoration of the chancel and the ceiling of the nave has been carried out by Mr. Powell, of Lincoln and London. The choir seats are of pitch pine, stained and varnished. The organ has been thoroughly overhauled by Mr. Sagar, of Leeds. Mr. Nicholson (Leeds) is the contractor for the builders' and joiners' work, and Mr. Jackson for the ordinary painting and glazing. The total cost of the alterations and improvements will amount to a little over 1,000*l.*

Aveton Gifford.—The restoration of the ancient parclose screens which formerly stood between the two easternmost bays of the south arcade in the parish church of St. Andrew, at Aveton Gifford, being now completed, they have just been replaced *in situ*, after an absence of sixteen years from the edifice. In the year 1869, being in a dilapidated condition, and seemingly past repair, they were removed from the church, and lay uncared for and almost forgotten in the rectory cellar until last summer, when the Rev. W. D. Pitman, the present rector, felt constrained to restore them to their original position, and with this end in view enlisted the services of Mr. Harry Hems, of Exeter, to whom was entrusted their renovation. The screens now re-erected measure about 22 ft. in length, and show much delicate detail. The lower panels on the one side are traceried, and on the other are decorated by the raised "linen" pattern. The upper parts are of open work, and are surmounted by richly-carved cornices and crestings. During the progress of the works just brought to a conclusion, fragments of some other screens were discovered. These are to be utilised by being formed into screens destined to occupy the two bays in the north arcade immediately facing those now re-erected. This additional work has also been placed in the hands of Mr. H. Hems.

Farnley.—The chief stone of St. Michael's Church, Farnley, was laid on Easter Monday. The church is being built in the place of one erected in 1761, which has become too small for

the requirements of the parish. The new building will be a stone-faced structure, with a few traceried windows, and will have a wooden porch, buttressed sides, and picturesque outline. It is designed to suit its special position, which is surrounded by the thick belt of forest trees forming the boundary to Farnley Park. Internally the building will consist of nave, north and south aisles, chancel, organ-chamber, and vestries. On each side of the nave and chancel will be an arcade of arches carried on columns, and crowned with a range of traceried windows. The roof will be of unvarnished pitch pine arranged in deep panels, with moulded principals forming regularly spaced bays. All the walls of the interior will be faced with buff-coloured terra-cotta blocks supplied by the Farnley Iron Company, the surface of which will be varied by one or two bands of ornamental work. All the columns, arches, and other stonework of the interior will be of red stone. The architects are Messrs. Chorley & Connon, of 15, Park-row, Leeds; the builders being,—Masons, Messrs. Wood & Sons, Churwell; joiner, Mr. J. Taylor, Yeadon; plumber, Mr. J. Woffenden, Leeds; slaters, Messrs. Sharp & Harper, Leeds. The entire cost of the building will be about 3,900*l.*, exclusive of some of the fittings. The accommodation will be for 420 worshippers, exclusive of the choir. Towards this sum 2,750*l.* has already been raised, 1,000*l.* being the gift of the Farnley Iron Company, and another 1,000*l.* that of Mr. Porson, who laid the chief stone.

Queensbury.—Queensbury Church was re-opened on the 2nd inst., after being closed eighteen months for restoration and enlargement. The church was built about forty years ago. For a long time it answered the requirements of the people of Queensbury, but during late years it has been too small for the increasing number of attendants. With the development of the business of Messrs. John Foster & Son, the population has gradually increased. Up to the time of the closing of the church for renovation accommodation was afforded for about 800 worshippers, and all the seats were occupied. By the recent alterations 150 additional seats have been provided. The extensions and improvements have been carried out at a cost of about 5,000*l.*, which has been defrayed by members of the Foster family. The most important part of the improvements is the erection of a chancel, built from designs prepared by Messrs. Healey & Healey, architects, of Bradford, under whose superintendence the various works have been carried out. In harmony with the rest of the building the chancel is in the Early English style. On the west side of the chancel has been placed the new organ, the gift of the late Mr. William Foster. The oak screen and choir stalls have been furnished by Messrs. Marsh, Jones, & Cribb, of Leeds. The renovations in the church have been of a complete character. The old-fashioned high-backed pews have been replaced with seats of pitch-pine. The stained-glass window in the chancel, representing scenes in the life of Christ, has been given by the sons of the late John and Ruth Foster, in memory of their parents. It is by Messrs. Shrigley & Hunt, of Lancaster. The window in the south aisle, by Messrs. Winfield (late Camm Bros.), of Birmingham, is given by Mrs. W. Foster to the memory of her late husband. The various works in connexion with the alterations and additions have been carried out by the following firms:—Mason work, Messrs. Michael Firth & Son, Queensbury; carving work, Messrs. Farmer & Brindley, of London; joiner's, Mr. James Wilson, of Bradford; plastering, Mr. Dickson, of Bradford; painting, Mr. Harland, Bradford; heating apparatus, Messrs. Clapham Bros., of Keighley; plumbing and glazing, Mr. Michael Stocks, Queensbury; slating, Mr. James Smithies, of Great Horton; lightning conductor, Mr. Davis, of Bradford; tiling, Messrs. Taylor & Parsons, Bradford. The gas-standards and altar-rail have been fitted up by Messrs. Dutton & Power, of Manchester.

Penzance.—The parish church of St. Madron is about to be restored under Mr. Sedding's directions. The church is an interesting one, and it is the mother-church of Penzance.

Iron Storehouses for the War Department.—Having completed their Suakim contract, Messrs. Clarke, Bunnett, & Co., Limited, have received further instructions from the War Offices to erect iron storehouses at the Royal Army Clothing Depôt, Pimlico.

DISSENTING CHURCH-BUILDING NEWS.

Edgbaston (Birmingham).—The new Wesleyan chapel in Stirling-road, Edgbaston, Birmingham, has lately been opened by the Rev. Dr. Dale, M.A. Although intended eventually as a lecture-hall and school-building, the present structure has been adapted and fitted as a place of worship for the society and congregation, who will at once take possession of it. The architect has adopted the Gothic style of architecture, but has subordinated it to the object sought to be attained, namely, the adaptation of the building for its present and future uses. It has a central hall lighted with clearstory windows, with rooms opening out of it. The new chapel has been designed to consist of a main hall, 60 ft. by 23 ft., with ten compartments or class-rooms adjoining for the accommodation of the various classes when under instruction. These rooms, which are about 12 ft. square, are divided from the principal apartment by glazed and revolving partitions and curtains, so that when required they can all be made available for congregational purposes. Provision is also made for the addition of other class-rooms when necessary, and the position of the superintendent's desk enables him to overlook the whole of the class-rooms when occupied by the scholars. Including the class-rooms, the interior dimensions of the building are 55 ft. by 60 ft. In place of the conventional pulpit there is a rostrum at the recessed end of the building, and the floor is fitted with pews and chairs for a congregation of 400 persons. On the site, however, there is ample space for the future erection of what may be called the chapel proper, to seat 800 persons. The building is lighted by an imposing window at the main entrance, and by several side-lights, all of which are glazed in lead with coloured and tinted glass. The chapel is built of red bricks with red stone dressings, and a half-timbered gable. The cost of the new chapel and the circuit extension scheme is something over 3,000*l.* The architect is Mr. Ewen Harper, of 57, Colmore-row, Birmingham, under whose superintendence the work has been carried out by Messrs. James Smith & Sons, builders, of Great Tindal-street.

Teignmouth.—The Wesleyan chapel at Teignmouth has been reopened, after enlargement. The building has been lengthened by the taking in of a portion of the school-room, and a new school-room has been constructed. The whole of the old-fashioned pews have been removed, and open pitch-pine benches substituted. A new rostrum takes the place of the pulpit, and immediately behind and above it has been fixed a large stained-glass window. The chapel has also been newly painted and decorated, both inside and out, and the result has been to give the whole building a much lighter appearance. By the enlargement accommodation has been provided for about 150 additional worshippers, and the building will now seat 600. The improvements have been carried out at a cost,—including the price of the land for the new school-room,—of between 1,400*l.* and 1,500*l.* The work has been executed (from the designs of Mr. John Watson, architect, of Torquay) by Mr. John J. Hayman, contractor, the joiner's work having been entrusted to Mr. R. Valentine.

Truro.—St. Mary's Wesleyan Chapel, Truro, has been re-opened, after renovation and alterations involving a total cost of about 2,000*l.* Open seats of pitch pine have replaced the old pews. The whole of the works have been carried out from the plans, and under the direction of Mr. Silvanus Trevail, architect. The contractor was Mr. W. Battershill, of Truro, the sub-contractors being,—Mr. W. Glasson for glazing and decorating, Messrs. M. & J. Clemens for the masonry, Messrs. Cock & Son for the plumbing, and Messrs. Smith & Son, Birmingham, for the ornamental ironwork. The organ has been re-voiced, and several stops added to it, by Messrs. Brewer & Co., of Truro.

Scarborough.—On the 2nd inst. twelve memorial stones were laid in connexion with the new Wesleyan Methodist Chapel which is being erected on the South Cliff at Scarborough. The building will occupy a prominent position at the corner of Prince of Wales-road and Ramshill-road. It is designed in the Decorated style of Gothic architecture, and will consist of nave, transepts, and chancel, which, together with an end gallery over the vestibule, will accommodate about 550 persons. A large lecture-room and two class-rooms are arranged at the back of the chancel end, the organ-chamber opening into the nave and chancel with wide arches. A spire will occupy a prominent position at the south-west corner. The architects are Messrs. Morley & Woodhouse, of Bradford and Bolton. The total cost, including spire, will be about 5,000*l.*

RECENT SALES OF PROPERTY.

ESTATE EXCHANGE REPORT.

MARCH 24.

By JOHN LEES.

Ashstead, Surrey—A plot of freehold land	£630
Reigate, Nutley-road—A freehold chapel and plot of land	400

MARCH 26.

By BUCKLAND & SONS.

Windsor, "The Grove House Estate"—34 plots of freehold land	3,865

MARCH 30.

By G. A. WILKINSON.

Old Kent-road—Freehold ground-rent of 100*l.* a year, reversion in 26 years	7,650
Abbey Wood, Kent—"The Cottage," and 1¼ acre part freehold and part leasehold	1,690

By TOPLIS & HARDING.

Notting-hill, Crescent-street—"The Shamrock" Beerhouse, freehold	770

By HUNTINGDON & Co.

Camberwell, Grove-lane—"The Kerfield Arms," 74 years, ground-rent 20*l.*	1,610
Westbourne Park—17, Southam-street, 77 years, ground-rent 7*l.* 10s.	400

By HARDS, VAUGHAN, & JENKINSON.

Woolwich, High-street—"The Waterman's Arms," beerhouse, freehold	700

MARCH 31.

By J. & W. JOHNSON & Co.

Bethnal-green—1 and 2, Thomas-street, 51 years, ground-rent 15*l.*	340
No. 26, Edward-street, 51 years, ground-rent 10*l.*	360
Nos. 14 and 15, Matilda-street, 16 years, ground-rent 3*l.* 5s.	185
No. 4, Russia-lane, 17 years, ground-rent 2*l.* 15s.	110

By DEBENHAM, TEWSON, FARMER, & BRIDGEWATER.

Clapton-common—29, freehold	1,750
Leith Hill, Surrey—The freehold residence, "Laylands," and 36a. 0r. 17p.	2,150
Seven freehold cottages, and 1a. 0r. 26p.	410

By FAREBROTHER, ELLIS, CLARK, & Co.

Grosvenor-square—4, Upper Brook-street, and stabling, 21 years, ground-rent 200*l.*	6,000
Borough—2, 3, and 4, Blackman-street, and 2, Great Dover-street, 20 years, ground-rent 300*l.*	1,300

By REYNOLDS & EASON.

Tottenham—36 and 38, Vicarage-road, freehold	450
A plot of freehold land	27
Kingsland—33, Buckingham-road, 38 years, ground-rent 3*l.* 10s.	340
Islington—88 and 90, Southgate-road, 34 years, ground-rent 7*l.* 4s.	805
Finchley—5 and 9 to 12 even, Torrington-terrace, 80 years, ground-rent 47*l.* 10s.	3,025
Notting-hill—An improved ground-rent of 10*l.* a year	80
Edgware-road—123 and 125, Church-street, and the Temperance Hall, 16 years, ground-rent 85*l.*	900
Holloway—56 Penn-road, 69 years, ground-rent 10*l.*	630

By W. HALL.

Holt, Wilts—Freehold house and 1a. 0r. 9p.	210
Accommodation land, 22a. 0r. 22p., freehold	1,900

APRIL 1.

By Messrs. ELGOOD.

Hyde Park—38, Albion-street, 37 years, ground-rent 10*l.* 10s.	1,560
Regent's Park—61, Upper Gloucester-place, 36 years, ground-rent 22*l.* 8s.	850

APRIL 2.

By C. C. TAYLOR & SON.

Stepney—2 to 7, Angel-alley, copyhold	615

By DALE & SON.

Mile-end—46, Harford-street, 32 years, no ground-rent	355
No. 155, Skidmore-street, 27 years, ground-rent 2*l.* 10s.	220
Lower Clapton—41, Elderfield-road, 88 years, ground-rent 6*l.* 10s.	300

By MARSH, MILNER, & LANGTON.

Shoreditch—42, Duke-street, freehold	355

Church Furniture and Fittings.—Among the works executed by Messrs. Jones & Willis, of London and Birmingham, for use at Easter, are a carved oak reredos for Kirkby Ravensworth Church, and an oak pulpit for the Church of Magourney, Ireland. They have also in hand a memorial pulpit for Ballycastle Church, in memory of the late Dean of Ripon.——Messrs. White & Sons, of Oxford-street, London, have just completed some wrought-iron screens, wrought-iron entrance-door hinges, polished brass altar-rails, and polished brass chandeliers, &c., for St. Agnes's Church, Liverpool; also some work of a kindred character for St. George's Church, Cullercoats, near Newcastle.

Bromley Sewers.—Mr. Hugh S. Cregeen, Surveyor to the Bromley Local Board, writes to say that the sewers reported upon by Mr. Rogers Field, and referred to in a "Note" in our last (p. 474), were not designed by him (Mr. Cregeen), nor carried out under his superintendence.

The Student's Column.

DESCRIPTIVE GEOMETRY.—X.

We have now become thoroughly acquainted with both the operations of changing the projection planes, and of rotating, which are to descriptive geometry as the four rules to arithmetic, the following problems will show us the *method of reasoning* we use in attacking any new question we may have to solve. We begin first by analysing the question and finding out what are the divers conditions which the result must satisfy. Most often there is an infinity of elements (points, lines, or surfaces) which would satisfy each one of the conditions, and we have to determine the series of elements which would satisfy these conditions taken separately; if amongst the divers series of elements there be any one element in common, then that element (point, line, or surface) will satisfy all the conditions of the problem, and therefore it is the result required. A very simple example, taken from plane geometry, will illustrate our mode of reasoning. We are asked to find out a point situated at say half an inch from a point O and three quarters of an inch from a point *r*.

The first condition will be satisfied by all the points of the circle of ½ in. radius round the centre, O, the second condition by all the points of the circle ¾ in. radius round the centre, *r*. It is evident that the points *a* and *b*, where the circles intersect one another, satisfy both conditions of the problem, and are, therefore, the points required. (See fig. 51.)

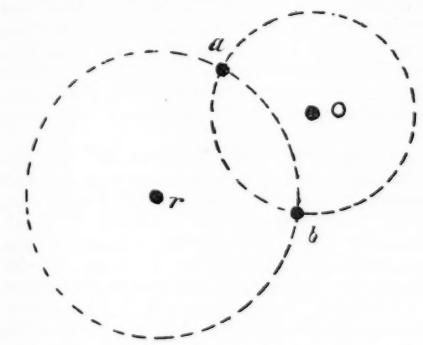


Fig. 51.

All the problems of descriptive geometry are really as simple as the above; they seem difficult on account of the trouble we have of realising what our drawings represent in space, and this we can only succeed to do by much practice.

Through a straight line, A, *carry a plane,* Q, *perpendicular to a given plane,* P.

In this problem we have two conditions, for each of which there are an infinite number of answers; an infinite number of planes will pass through the line A, and an infinite number of planes will be perpendicular to any given plane P; but there is one plane which will satisfy simultaneously both conditions. A plane is determined when it contains two straight lines; of course the requisite plane must contain the line A, condition number one; on the other hand, all the planes perpendicular to the given plane P contain lines perpendicular to the plane P; that is condition number two. Therefore, if through a point, C, of the line A we draw a line, F, perpendicular to the plane P, then the plane Q, which contains the lines A and F, will satisfy both conditions of the problem, and is, therefore, the plane required. (The projections of a line perpendicular to a plane are perpendicular to the traces of the plane.) (See fig. 52.)

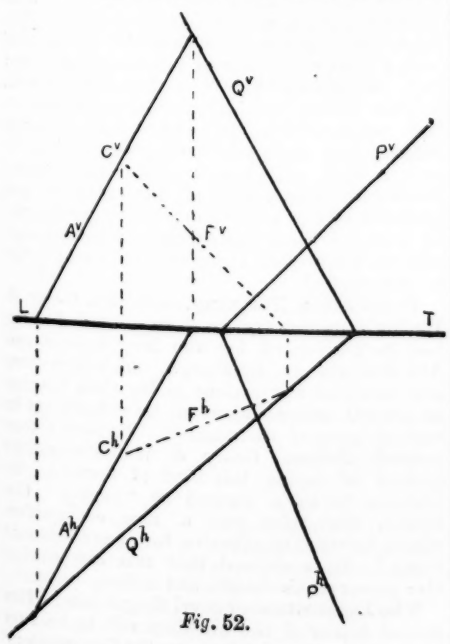


Fig. 52.

We have gone fully into the preceding problem so as to initiate the student in thinking for himself; for we should be very sorry if he only got from us rule-of-thumb learning, with a bundle of recipes for solving a certain number of problems, and no more. In the following problems we shall cut our explanations short, and leave the student the task of reconstituting for himself the general argument on which each solution is based.

Through a point, C, *carry a straight line,* I, *so as to meet two other straight lines,* A *and* B.

We first draw a plane, P, passing through the point C and the line A; then we draw another plane, Q, passing through the point C and the line B, the intersection of these two planes is the line I required. The student will do well to carry out these operations on paper, but as they offer no novelty we shall dispense with giving a figure for the same. Nevertheless this is one of the most important problems which we shall often have to solve in masonry.

Through a given straight line, A, *carry a plane,* P, *having an inclination equal to the angle* α *given.*

The horizontal trace P^h of the plane passes necessarily through the point *a* where the line A enters the plane of the plan. If by a point, *c*, of the line A we draw a line, D, following the inclination of the plane P, the foot *d* of that line D will be another point of P^h. If round a vertical axis, $c^h c$, we rotate the line D until it be parallel to the elevation plane, the elevation of D^1 will then give us its real inclination. We know that inclination to be the angle α; therefore, we can draw D^{1v}, the foot of which is d^1. When rotating back the line D to its real position the foot d^1 describes an arc of a circle around c^h to get to its position *d*; we conclude, therefore, that P^h is tangent to that circle. (See fig. 53.)

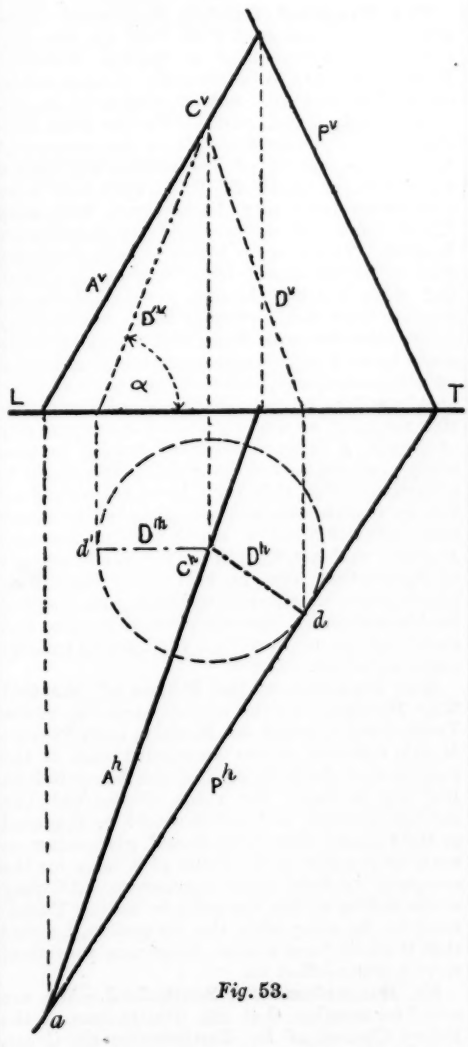


Fig. 53.

Given the angle formed by two straight lines and the inclination of each of them, find out the angle they project on the plan.

We can assume that the elevation plane contains one of the straight lines, say C S is its elevation, and L T its plan; this done, we shall take the other line through the point S. If we rotate it round the axis $S^h S$, we know by its inclination its position S m^1 when contained in the elevation plane, and that in rotating the point *m* describes a circle round S^h. If, on the other hand, we rotate the line S *m* round the first line, C S, as axis, we can again draw it when contained in the elevation plane, for we have the angle, *a*, it forms with C S. The point *m* will then be in m^{11}, and S m^{11} will equal S m^1; in rotating back, the elevation of the point *m* will travel on the line $m^{11} m^v$, perpendicular to the axis of rotation, C S, we deduct therefrom *m* on the circle formed by *m* in the first rotation round the axis $S^h S$ and $m^v S^h m$ gives the angle required. A simplification is obtained by the fact that C *m* is equal to C m^{11}; therefore, by drawing a circle round C, with radius C m^{11}, we get *m* at its intersection with the circle round S^h. (See fig. 54.)

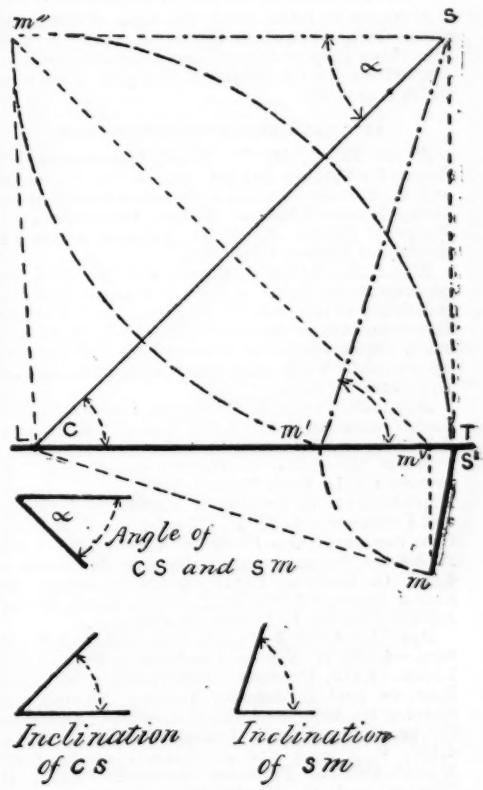


Fig. 54.

RECENT PATENTS.

ABSTRACTS OF SPECIFICATIONS.

86, Combined Door-knocker and Bell. R. H. Hepburn.

Causing the knocker and bell to sound simultaneously when the knocker is used, the prolongation or rod at its point passing through the door strikes on a bell. The rod may strike the edge of a bell, supported on a central stud, or, in another modification, a bell-crank lever may be substituted for the rod, one end of the lever being carried through the door to bear against the tip of the knocker. The metal piece against which the knocker usually strikes is preferably dispensed with, and a strip of leather may be used to further deaden the sound.

125, Hydraulic Lift. A. Clark.

The dead load of the cage rams, &c., is counterbalanced by a supplementary ram working in an independent cylinder, which is kept in constant communication with the pressure supply. The diameter of the ram is such that it cannot raise the cage by itself, thereby enabling the cage, when empty, to descend.

221, Suspending Corrosive Action of Acids, &c. D. Urquhart.

The corrosive action of acids, &c., is suspended by mixing them with absorbent substances, such as infusorial earth. The mixtures thus obtainable are useful for many purposes, disinfectants, cleaning metals, &c.

512, Kitchen Ranges. J. Dean.

Consists in forming a hot-air chamber by a metal casing surrounding the oven, and fastening the same to the range, thus making the range complete in itself, and easily set in position.

1,088, Ventilating Drain-pipe. J. Becket.

An open pipe of U-shaped cross-section is inserted in the house-drain between the house and the sewer. On each side of the pipe the brickwork is built up to the surface of the ground, and the opening at the top is covered by a grating. These pipes may be utilised to form a continuous open drain, in which case the brickwork is dispensed with, and the gratings are laid immediately on the pipes.

6,388, Parquet Flooring. H. A. Duprené, Paris.

The strips or boards which form the floor are supported by an under floor or joists, and prevented from shifting by tongues of wood or metal which fit into suitable grooves made in the ends of the strips, the use of nails or screws being entirely dispensed with.

12,478, Roller Blind. J. E. Hopkinson.

A groove is made along the edge of the roller, either from one end of the roller or at intervals; into this a strip or strips of heavy metals is placed to counterbalance the weight of that part of the blind which is unrolled.

APPLICATIONS FOR LETTERS PATENT.

March 27.—3,910, T. Wood, Improvements in Boilers for Kitchen Ranges, &c.—3,916, E. Omerod and W. Horne, Rendering Cements Luminous and Damp Proof.—3,932, J. Homan, Improvements in Fireproof Floors.—3,945, D. Putzeys, Alarm Extincteur of Fires in Chimneys.

March 28.—3,956, H. Steven and W. More, Improvements in Spiral and other Stairs constructed principally of Iron.—3,958, H. Steven and W. More, Improvements in Sewer Traps.—3,965, E. L. Ransome, Improvements in Constructing and Carrying up Concrete Walls and other Structures, and in Apparatus for same.

March 30.—4,014, F. Wildegose, Improved Safety Sash Ventilation Bolt.—4,018, E. and E. H. Ludlow, Adjusting and Attaching Door Knobs to Spindles.

March 31.—4,050, W. Willetts and H. Ball, Improvements in Rock Drills.—4,067, C. H. James, Improvements in Latches or Fastenings for Doors and Furniture.—4,078, H. Gilchrist and C. Bellamy, Construction of Gas Pliers and Gas Tongs.—4,081, A. Mackie, Improvements in Heating Apparatus.—4,084, G. Redfern, Improvements in Bakers' and similar Ovens.—4,086, W. T. and C. Smith, Mathematical Drawing Instrument or Compass.

April 1.—4,095, J. Taylor, Improved Lock Furniture.—4,105, W. Neilson, Combined Latch and Bolt Locks.—4,119, E. Benn, Improvements in Cutter Bars, or Tool Holders for Turning, Planing, and Shaping Machinery.—4,125, S. Low, jun., Apparatus for producing Upcast Draught in Ventilation.—4,127, F. Cooper and J. Stanley, an Improved Manufacture of Polishing Material.—4,131, H. Walker and G. Clark, Improvements in Dust Bins.

PROVISIONAL SPECIFICATIONS ACCEPTED.

15,325, W. Watson, Improvements in Decorative and Ornamental Designs.—960, A. Graham, Self-acting Bolt-fasteners for Cupboard Doors, &c.—1,372, F. Nannistad, Ventilating Chimney Top.—1,848, F. Podany, An Improved File.—2,035, C. Price, Kilns for Burning and Drying Bricks.—2,771, J. R. Cast, Apparatus for Setting the Teeth of Saws.—3,094, W. Sharp, Construction and Glazing of Street and other Lamps.—3,179, C. Nokes, Pulley-wheels for Chandeliers, &c.—3,191, A. Sweet, Improved Cisterns.—3,230, H. Taylor, Movable Ventilating Sewer Manhole Covers and Frames.—3,268, S. Collier, Cross Spring Tip Cart.—3,349, F. Biggs, Spring Hinge,—3,396, H. Sans, Improvements in Hinges.—3,409, S. Hellyer, Improvements in Pedestal Water-closets and Mounting same.—3,464, R. Evered, Flushing Cisterns.—3,477, T. Wilson and H. Johnson, Chimney or Ventilating Cowls.—2,964, J. Prince, Improvements in Brick and other Kilns.—3,000, S. Furnival, Moulds for Moulding Plastic Articles.—3,097, J. and H. Rust, Improved Vitreous Material for Paving Purposes.—3,215, J. Collinge, Improvements in Wardrobes.—3,315, D. Macdonald, Damp-proof Walls.—3,422, D. Thomson, Improvements in Ventilating.—3,512, E. Summerfield, Adjusting and Fixing Door Knobs to their Spindles.

COMPLETE SPECIFICATIONS ACCEPTED.

Open to opposition for two months.

5,931, R. Ormerod, Apparatus for Forming Domes and Circular Buildings in Concrete and Plaster.—8,650, J. Donald, Improvements in Fire Grates.—8,779, J. Johnson, Apparatus for Working Electric Bells.—10,331, V. Monsel, a New Economical Stove.—11,965, H. Curzon, Collecting Rain-water for Storage.—12,181, W. Bahre, Apparatus for Preventing the Slamming of Doors.—8,899, C. Wenner, Ventilation of Buildings.—2,825, F. Grisler and A. Logemann, Smoke-consuming Furnaces.

MEETINGS.

SATURDAY, APRIL 11.

Architectural Association.—Visit to the Northumberland Avenue Hotel. 3 p.m.

MONDAY, APRIL 13.

Society of Engineers.—Mr. J. Dixon Gibbs on "The Distribution of Electrical Energy by Secondary Generators." 7.30 p.m.

Clerks of Works' Association of Great Britain.—Second Annual Dinner (St. James's Hall Restaurant). 7 p.m.

TUESDAY, APRIL 14.

Institution of Civil Engineers.—Mr. W. Shelford "On Rivers running into Tideless Seas, illustrated by the River Tiber." 8 p.m.

WEDNESDAY, APRIL 15.

Society of Arts.—(1) Dr. B. W. Richardson on "The Removal of House Refuse Independently of Sewage." (2) Dr. Thomas Hawkesley on "A Proposal for the Abolition of Water-Carriage in the Removal of Effete Organic Matter from Towns." 8 p.m.

Builders' Foremen and Clerks of Works' Institution.—Quarterly Meeting of Members. 8.30 p.m.

British Archæological Association.—Mr. E. Maunde Thompson, F.S.A., on "Archbishop Ælfric's Vocabulary." 8 p.m.

St. Paul's Ecclesiological Society.—Mr. E. P. Loftus Brock, F.S.A., will read "Some Notes on the Churches of London." 7.30 p.m.

Manchester Society of Architects.—Council Meeting. 3 p.m.

THURSDAY, APRIL 16.

Society for the Encouragement of the Fine Arts.—Mr. George Aitchison, A.R.A., on "Architecture in the Nineteenth Century." 8 p.m.

Institution of Civil Engineers (Special Meeting).—Mr. Thomas Stevenson on "Tides and Coast-Works." 8 p.m.

Dundee Institute of Architecture.—Professor Ewing on "The Sanitary Inspection of Dwelling-houses."

SATURDAY, APRIL 18.

Edinburgh Architectural Association.—Visit to Forth Bridge Works and Rosyth Castle.

St. Paul's Ecclesiological Society.—Visits to St. Giles's Church, Cripplegate (3.30 p.m.); and St. Sepulchre's, Sonw-hill (4.30 p.m.), under the guidance of Mr. G. H. Birch.

Miscellanea.

The Proposed Gordon Memorial Hospital.—The choice of Port Said for the proposed establishment of a Gordon Memorial Hospital appears to be adversely commented on by professional and public opinion in Egypt. It is strongly urged that by far the most suitable place is Alexandria. It is the seaport of Egypt, the centre of commerce, and has a population of nearly 200,000. Port Said is an outlandish insanitary little town, with only 12,000 people, of whom about six families are English. There is no highway to it from any part of Egypt except from Suez by the Canal, and ships passing through the Canal do not stop at Port Said. Nor is there any railway communication with it, so that a hospital there could benefit only an odd seaman landed from a passing vessel, or, perchance, a stray traveller. In Alexandria, on the other hand, with its extensive shipping, as the import and the export city of Egypt, a large number of British seamen every year are landed for resident treatment in a hospital. For this they have to depend on foreign institutions, and are attended by nurses that do not always speak their language. English residents, also, in the towns and villages of Egypt, that have no real home where they can be attended to during sickness, go to hospital in Alexandria as the commercial centre, and could not go to Port Said for want of railway communication.—*Lancet*.

The Removal of the Ruins of the Old Tay Bridge.—At the monthly meeting of the Perth Town Council on Monday, Lord Provost Martin referred to the successful issue of the litigation of the town against the North British Railway to have the ruins of the old Tay Bridge removed, and said it would be the mind of the Council that they should give notice as early as possible in the Court of Session for the company to fulfil their agreement. Alluding to the action of the company in asking Parliament to do away with the obligation, he said that it would form a most dangerous precedent were it given effect to.

St. Bartholomew's, Smithfield.—We are asked to mention that the illustrations of the Priory Church of St. Bartholomew-the-Great, East Smithfield, which appeared in the *Builder* of March 28th, were from a series of photographs taken by Messrs. Bedford Lemere & Co., No. 147, Strand, W.C.

British Archæological Association.—At the meeting of this Association on the 1st inst., Mr. Thos. Morgan, F.S.A., in the chair, Mr. Sheraton reported the discovery of the foundations of a small Norman chapel, in a field near Ludlow, which has been called "Chapel Field" from time immemorial, although there was no record whatever of any such building having stood there. The foundations showed that it consisted of a simple nave ending in a semi-circular eastern apse. A few encaustic tiles were found. Among various antiquities which were exhibited by different members were several of the singular objects manufactured many years ago by the Whitechapel firm of "Billy" and "Charley." Their forged antiquities were exposed at the time by Mr. Syer Cuming, F.S.A. (Scot.), and some other members of the Association, but so many of the articles are still current in old curiosity shops, that, in the interests of this generation of young collectors, the selection exhibited had been brought together by Colonel Adams, F.S.A. Mr. Loftus Brock, F.S.A., exhibited a curious bronze mounting of an old English cabinet, probably a relic of the Great Fire. An elaborate paper was then read on Domesday Book, by Mr. W. de Grey Birch, F.S.A. The author treated at length upon the origin of the Survey and of the mode of its compilation, pointing out that it did not include the extreme northern counties, probably on account of their disturbed condition. The three books of Domesday were fully described, and the peculiarities in these pointed out, attention being drawn to the long misunderstood text of the Cambridgeshire portion in the British Museum. The importance of collating the various MSS. was dwelt upon, and it was suggested that this would afford abundant and useful work for a new Domesday Society. A paper by Dr. Alfred Fryer, on ancient glass, containing an elaborate table of analysis, had to be taken as read, owing to the lateness of the hour.

Archæology at University College, London.—Arrangements have been made for a course of five lectures on Greek Numismatics, to be delivered by Mr. Barclay V. Head, Assistant Keeper of the Department of Coins and Medals in the British Museum. The following are the heads of the Syllabus:—Lecture I. (April 20), "Coin-types and Religious Symbolism,—Portraiture." Lecture II. (April 27), "The Babylonian and Assyrian Weights, and the Invention of Coined Money." Lecture III. (May 4), "Transmission of the Art of Coining from Asia to Europe." Lecture IV. (May 11), "The Trade-routes from Greece to the West:—Magna Græcia." Lecture V. (May 18), "The Greek Coinage of Sicily in the fifth century B.C." The lectures will be illustrated by maps, diagrams, and casts taken from the original coins.

Death of Mrs. G. T. Clark, of Dowlais.—We notice with much regret the announcement of the death of the wife of Mr. G. T. Clark, F.S.A. A Cardiff paper speaks in appreciative terms of her labours among the poor in Dowlais, a place which is described as "simply a huge workshop covered with smoke and haunted with a howl which goes on incessantly night and day. In fine weather the east wind revels with sulphur fumes, and in wet, habitation, save to the acclimatised, is horrible. How ladies, refined and cultured, could elect to live in such a spot, and devote their lives in compassionate labour, with all the greenness and gladness of the world around them, unthought of, is one of those facts which do more to support one's faith than any exercise of metaphysics or philosophy."

Wood-block Flooring.—Messrs. Geary & Walker's patent system of wood-block flooring has been adopted for the New Science and Art Museum at Edinburgh. This firm have also received instructions to lay their flooring at several other important new buildings in various parts of the country. We have before noticed Messrs. Geary & Walker's patent system of laying this kind of flooring. In addition to their method of "keying" the blocks, they also use a new composition which, being very adhesive, forms an additional "key." It is claimed that this composition also preserves the blocks and is damp-proof.

The Institution of Civil Engineers.—The annual dinner of the members will be held on Wednesday, the 29th inst., in the Conservatory of the Inventions Exhibition. After the dinner there will be an informal private view of the Inventions Exhibition, more particularly of the electric lighting arrangements.

Improvements at Burntisland Harbour. The new sidings and embankment-wall completed at Burntisland, at a cost of 2,800*l.*, are now affording increased facilities for the coal traffic. The south hoist, on east quay of dock, and enlargement of return mains, were provided by Messrs. Armstrong & Co., for 751*l.*, and the same firm substituted an iron framework, on an extended scale, at No. 1 hoist, for the decayed wooden frame, raising the lift from 15 ft. to 22 ft., at an expense of about 927*l.* Standpipes and tanks have been furnished for Nos. 1, 2, and 3 hoists, for relieving the back-pressure of the return mains, and expediting the lowering of the lifts. A new chimney, 100 ft. in height, is being raised at the engine-house, at an estimated cost, with brick flues, of 200*l.* Repairs on the dock-heads are almost completed, at an expenditure amounting in the aggregate to 800*l.* The masonry has been thoroughly tied back with strong iron rods, fixed to concrete blocks, which is expected to obviate the shifting and cracking of the walls in this exposed quarter. The work of replacing the old cofferdam by a substantial stone quay-wall, running parallel with it, but taking in other 25 ft. of the tidal basin, is being carried out, in successive contracts, by Mr. Thomas Chalmers. This wall is founded on bearing-piles, driven down through clay and mud, a foundation being thus secured at 34 ft. from cope level. It is built with rubble concrete, faced with ashlar, and the remaining 600 ft. is intended to be proceeded with until a junction is formed with the embankment at the head of the tidal harbour. The works have all been designed and superintended by Mr. R. Henderson, the resident engineer.—*Scotsman.*

CONTRACTS AND PUBLIC APPOINTMENTS.

Epitome of Advertisements in this Number.

CONTRACTS.

Nature of Work, or Materials.	By whom required.	Architect, Surveyor, or Engineer.	Tenders to be delivered.	Page.
Making-up and Sewering Factory-road	West Ham Local Brd.	Lewis Angell	April 14th	ii.
Dust Shoots	do.	do.	do.	ii.
Making-up and Paving Roadways, &c.	Willesden Local Board	O. Claude Robson	do.	ii.
Pumps, Engines, and Sludge Presses	do.	do.	do.	ii.
Honduras Mahogany	F. Sage & Co.		April 16th	xx.
Painting and Repairs	Midland Railway Co.	A. A. Langley	do.	ii.
Fittings, New Post-Office, Exeter	Com. of H.M. Works	*Official*	April 17th	ii.
Tavern, Tilbury Dock-road	Seabrooke & Sons	E. C. Allam	do.	ii.
Cast-Iron Pipes	Maidstone Wat. Wks Co.	E. Easton & Co.	April 18th	ii.
Circular Reservoir	Grdns. Haslingden Un.	*Official*	April 20th	xxix.
Wood Paving	Birmingham Public Works Committee	W. S. Till	do.	ii.
Engine-House	Tottenham Local Board	— De Pape	April 21st	xx.
Road Material	Lewisham Brd. of Wks.	*Official*	do.	xx.
Roads and Sewers, Chatto's Estate, Clapham Common		W. N. Dunn	do.	ii.
Railway Stores	L. B. and S. C. Ry. Co.	*Official*	April 22nd	ii.
Houses and Stabling, South Acton Estate	A. Robertson	C. N. Lailey	do.	xxix.
Repaving Carriageway and Footways	Met. Board of Works	*Official*	April 23rd	ii.
Boundary-Wall, &c., Workhouse School	Guardians of St. Mary, Islington	W. Smith	do.	ii.
Additions, &c., to Orphanage Buildings	Railway Servants' Orphanage, Derby		April 24th	xx.
Public Baths and Free Library	Rotherham Corporation	H. L. Tacon	April 25th	xx.
New Hospital, Newbury	The Committee	H. G. Turner	April 27th	xxix.
Alteration, &c., Outfall Sewer	Dover Corporation	*Official*	April 28th	ii.
Steam Pumping-Machinery	Rotherham Cor.	J. Mansergh	April 30th	xx.
Extension of Filters, Ulley Reservoir				
New Municipal Offices, Police-courts, &c.	Burnley Corporation	H. Holtom	May 13th	ii.
Semi-detached Cottages		— Connew	Not stated	xxix.
Erection of Six Small Houses	Proprietors, Belmont Estate, Sutton	E. S. & H. Boosey	do.	xx.
Erection of Corn Exchange	Abingdon Corporation	Chas. Bell	do.	ii.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Applications to be in.	Page.
Assistant, Borough Surveyor's Office	Reading Corporation	Not stated	April 14th	xviii.
Resident Clerk of Works	Govnrs. Lucton School	do.	April 16th	xviii.
Clerk of Works	Wellngtn (Somerst) L. B.	do.	April 21st	xviii.
District Surveyor, East Kensington	Met. Board of Works	do.	April 22nd	xviii.

TENDERS.

For new roads and sewers at Bognor, for Messrs. Steel, Coote, & Marshall. Mr. W. L. Barrett, Assoc. M.Inst. C.E., engineer:—

J. W. Hobbs	£4,630 0 0
A. T. Catley	4,400 0 0
Thos. Adams	4,239 0 0
Chas. Chamberlain	4,107 0 0
W. H. Dearle	4,093 0 0
J. W. Holtham	4,085 0 0
F. G. B. Marshall	3,993 0 0
Bolton, Bros.	3,937 0 0
J. H. Etheredge	3,839 0 0
Thos. Rigby	3,832 0 0
Cook & Smith	3,800 0 0
Arthur Smith	3,750 0 0
B. Cook & Co.	3,741 0 0
John Harrison	3,578 0 0
Chas. Killingback	3,543 0 0
Robert Nicholson	3,496 0 0
Josh. Butt	3,438 0 0
Wm. Williams	3,350 0 0
J. C. Trueman	3,295 0 0
Geo. Newman (accepted)	3,290 0 0

For repairing roads for the Acton Local Board. Mr. Nicholson Lailey, surveyor:—

A. Walker	£6,439 0 0
Nowell & Robson	6,125 13 3
J. G. B. Marshall	6,112 0 0
James Pizzey	5,817 0 0
B. Cook & Co. (accepted)	5,545 0 0

[Surveyor's estimate, 6,687*l.*]

For decorations at the Foresters' Hall, Clerkenwell-road, for the Ancient Order of Foresters:—

Garrod	£247 15 0 !
Mann	210 0 0
Gooden	170 0 0
Ormiston	167 12 0
Kinloch	134 0 0
Chapman	128 0 0
Flintham	122 11 0
Dearing & Son	109 0 0
Eades	99 0 0
Stevens	87 0 0 !

For English Congregational Church and schools, Colwyn Bay, North Wales. Mr. Owen Edwards, architect and surveyor, Rhyl, North Wales:—

	Plan A.	Plan B.
Foulkes & Son, Rhyl	£2,550	£2,300
J. Berth Jones, Llanrwst	2,864	2,264
Owen Lloyd, Colwyn Bay	2,450	2,263
J. Williams & Son, Rhyl	2,899	2,077
A. Torkington,* Rhyl	2,720	2,000
E. Roberts, Conway	3,683	1,976

* Plan B accepted with certain modifications.

For rebuilding 13, 15, and 17, Gray's Inn-road, Holborn' as two shops and dwelling-houses, exclusive of shop-fronts and fittings to ground-floors and basements, for Mr. A. J. Hollington. Mr. R. W. Crawley, architect, 12, Trinity-square, Tower-hill:—

Spaight & Co. (accepted)	£955 0 0

For Wanstrow Water Supply, for the Frome Rural Sanitary Authority:—

Harding	£361 12 10
Pickthall & Sons	321 2 1
Read	297 0 0
Vallis	284 10 0
Bodman & Son	273 0 0
Barnes	252 1 11
Smith	240 0 0
Wilcox	226 7 0

For the erection of two villas, at Woburn Sand, for Mr. F. Moore. Mr. F. T. Mercer, architect. Quantities supplied:—

Poole	£955 0 0
Sharrett	910 0 0
George	900 0 0
White	882 0 0
Laughton	879 16 0
Harrison	849 0 0
Warton & Walker	844 0 0
Young	837 10 0

For new drapery premises, for Messrs. Barrett & Greenland, High-street, Hereford. Mr. W. W. Robinson, architect, 21, King-street, Hereford:—

Wm. Cullis, Victoria-street, Hereford (accepted).

For Tonbridge Union Infirmary. Messrs. H. H. & R. Cronk, architects, Tunbridge Wells. Quantities supplied:—

Paramor & Son, Margate	£4,270 0 0
Gullard & Son, Southborough	4,095 10 0
Balaam, Bros., London	4,050 0 0
John Jarvis, Tunbridge Wells	3,960 0 0
Edward Proctor, Woolwich	3,900 0 0
Edward Wheatley, Tonbridge	3,885 0 0
James Longley, Crawley	3,853 0 0
G. & F. Penn, Pembury	3,847 0 0
Staines & Son, London	3,844 0 0
W. & T. Denne, Walmer	3,698 0 0
W. J. Adcock, Dover	3,670 0 0
P. Peters, Horsham	3,655 0 0
R. Webster, Folkestone	3,650 0 0
J. J. Wise, Deal	3,610 0 0
John Bingham, Headcorn	3,597 0 0
Foster & Dicksee, Rugby	3,590 0 0
Punnett & Sons, Tonbridge	3,573 0 0
Denne & Son, Deal	3,480 0 0
Wallis & Clements, Maidstone	3,332 0 0
Q. Austen, Tonbridge	2,868 6 0

For the erection of a mission-hall and premises at Myrtle-street, Blackstock-road. Messrs. J. E. Goodchild & Son, architects, 81, Finsbury-pavement:—

		Extra for Screen.
Woodward	£1,250 0 0	£46 0 0
Flaxman	1,220 0 0	50 0 0
Chessum	1,169 0 0	40 0 0
Johnson	1,160 0 0	40 0 0
Thomas Wontner Smith & Son	1,144 0 0	35 0 0

For the erection of Baptist chapel and lecture-hall, St. Benedict's-square, Lincoln. Mr. J. Wallis Chapman, architect, London. Quantities supplied:—

		Add if in Pitch-pine.
Martin & Sims, Lincoln	£3,380	£75
J. & T. Binns, Lincoln	3,293	100
Walter & Henman, Horncastle	3,068	165
J. M. Harison, Lincoln	2,982	75
Richardson, Leake, Boston	2,944	75
Close, Brayford-side, N. Lincoln	2,929	50
Baines, Newark, Notts.	2,885	29
Knight, Martin	2,880	29
Young, Lincoln	2,823	70
Greenwood, Mansfield	2,800	70
J. W. Harison & Sand, Lincoln	2,698	75
Horton, Lincoln	2,510	—
Otter & Broughton, Lincoln	2,510	35
J. B. Harisson, Lincoln	2,509	—
Storey & Son, Bourne, Lincoln	2,490	45
J. Crosby & Sons,* Lincoln	2,329	50

* Accepted.

For additions and improvements to the Bull and Bush Tavern, Hampstead. Mr. H. Hardwicke Langston, architect, 9, Great James-street, Bedford-row. Quantities by Mr. F. H. A. Hardcastle:—

Nightingale	£1,930 0 0
Falkner	1,895 0 0
Eady	1,884 0 0
Johnson & Co.	1,850 0 0
Gould & Brand	1,773 0 0
Harris & Wardrop	1,769 0 0
W. & H. Castle	1,768 0 0
Ridout	1,610 0 0

For the erection of a class-room adjoining the infant school, for the East Grinstead School Board. Mr. S. W. Haughton, architect, East Grinstead:—

Charlwood Bros., East Grinstead	£330 0 0
W. Pledge, East Grinstead	297 0 0
G. A. Taylor, Forest Row	265 10 0
J. Morris, Ashurst Wood	265 0 0
G. Quickenden,* East Grinstead	250 0 0

* Accepted.

For the erection of schoolroom, North End, East Grinstead. Mr. S. W. Haughton, architect:—

Head & Wallis, Lingfield	£351 0 0
S. Webber, Crawley Down	315 0 0
G. Beard, East Grinstead	307 10 0
J. Morris, Ashurst Wood	250 0 0
Charlwood Bros., East Grinstead	230 0 0
A. Foster, East Grinstead	221 0 0
W. Pledge,* East Grinstead	177 0 0

* Accepted.

For alterations and repairs to Edenbanks, Edenbridge. Mr. S. W. Haughton, architect:—

Charlwood Bros., East Grinstead	£248 0 0
Beale & Son, Tunbridge Wells	235 0 0
J. Tooth, East Grinstead	235 0 0
T. Dives, Lingfield	230 15 0
D. Smith, Tonbridge	223 0 0
J. Jarvis, Tunbridge Wells	215 0 0
Goodwin Bros.,* Edenbridge	180 0 0

* Accepted.

Accepted for dwelling-house, bakehouse, &c., for Mr. Mortimer, Spring-road, Bedford. Mr. F. T. Mercer, architect. Quantities supplied:—

Long	£695 10 0

For the erection of public baths, for the Corporation of the Borough of Stockport. Mr. J. C. Prestwich, architect, Leigh, near Manchester. Quantities by the architect:—

	£	* £	† £	Total. £ s. d.
Cordingley & Sons	6,150	293	205	0 0 ... 6,648 0 0
Geo. Parkinson	5,291	255	229	0 0 ... 5,775 0 0
Thos. Norbury	5,338	170	198	0 0 ... 5,706 0 0
Geo. Warburton	5,265	208	148	0 0 ... 5,621 0 0
John Matthews	5,120	207	231	0 0 ... 5,558 0 0
W. Winnard	5,050	230	250	0 0 ... 5,530 0 0
Wm. Brown	5,020	200	297	0 0 ... 5,517 0 0
Ralph Whitell	4,999	230	300	0 0 ... 5,499 0 0
W. Southern & Sons	4,925	195	215	0 0 ... 5,335 0 0
F. & W. Meadows	4,905	189	208	16 9 ... 5,302 16 9
J. Broadhurst	4,900	190	185	0 0 ... 5,275 0 0
Geo. Macfarlane	4,850	135	280	0 0 ... 5,265 0 0
R. Neill & Sons	4,818	194	215	0 0 ... 5,227 0 0
W. H. Brown	4,760	192	194	0 0 ... 5,146 0 0
Peters & Sons	4,705	189	154	0 0 ... 5,048 0 0
Froggate & Briggs‡	4,676	189	244	0 0 ... 5,109 0 0

* Extra for paving in white glazed bricks to bottom of plunge baths.

† Extra for roof boarding in lieu of plaster ceilings.

‡ Accepted without boarding under slates.

For building four workshops, and repairing four houses, for Messrs. Sampson & Friedlander, at Greenfield-street, Whitechapel. Mr. J. Hudson, architect, Leman-street :—

Gladding	£976 0 0
Jas. A. Taylor	930 0 0
Heath	894 0 0
Isaacs & Cohen	844 0 0
Coulson Bros.	780 0 0

Accepted for supplying steam lifts to factory at Vauxhall, for Messrs. Barrett & Co. (Limited). Mr. E. Rawlings, architect, 3, Victoria-street, Westminster :—

Waygood & Co.	£735 0 0

Accepted for sundry sanitary works to workmen's dwellings, Tabor-street, Southwark, for Mr. R. C. Martin :—

J. Jarvis & Sons	£875 0 0

For new residence and stabling, Hart-hill, Luton, for Mr. J. Burge. Mr. W. J. Pearson, architect :—

F. White	£1,585 0 0
D. Parkins	1,559 10 0
T. Neville	1,482 0 0
Slough Bros.	1,475 0 0
Dunham & Son	1,390 0 0
H. Spencer	1,315 0 0

For alterations and addition to the Addington-square Baths, Camberwell, for Mr. Sparrow. Mr. E. Marsland, architect :—

Greenwood	£889 0 0
Shipton	851 0 0
Fisher	835 0 0
Watson, Dulwich	825 10 0
Downs	822 0 0
Thompson	731 10 0

Accepted for alterations to Melford Lodge, Underhill-road, Dulwich, for Mr. Paulin. Mr. J. G. Raynes, architect :—

T. Watson, Dulwich	£150 8 6

For house in Bath-road, Reading, for Mr. William Weedon. Messrs. Morris & Stallwood, architects, Reading :—

Bottrill	£1,015 0 0

[No competition.]

For rebuilding 1, Friar-street, Reading, for Mr. W. F. Blandy. Messrs. Brown & Albury, architects, Reading :—

		Time.
Woodruff	£3,087 0 0	38 weeks.
Wornham	2,543 0 0	32 ,,
Higgs & Sons	2,520 0 0	30 ,,
Bottrill	2,490 0 0	24 ,,
Kingerlee	2,295 0 0	20 ,,
Searle	2,280 0 0	27 ,,

For rebuilding the White House, Bramley, near Guildford, for Captain Webster. Messrs. Peak, Lunn, & Peak, architects, Guildford :—

		Finish by
Mitchell Bros., Shalford	£2,550 0 0	Dec. 29
Harvey Brown, Bramley	2,536 5 3	Dec. 31
Martin, Wells, & Co., Aldershot	2,500 0 0	Sep. 30
Pinkey, Milford	2,488 8 2	Dec. 30
Harris & Sons, Woking	2,473 0 0	Dec. 31
J. Bottrill, Reading	2,378 0 0	Nov. 9

For house and stables at Wallingford, for Mr. Frank Weedon. Mr. W. Ravenscroft, architect, Reading :—

Smallbone	£2,626 0 0
Cook	2,624 0 0
Higgs, Goring	2,622 10 6
Brasher	2,580 15 5
Higgs & Sons, Reading	2,543 0 0
Winkworth	2,521 8 9
Margetts	2,468 0 0
Searle	2,440 0 0
Bottrill	2,390 0 0

For alteration and new warehouse at 158, Old Kent-road, for Mr. A. Bennett. Mr. W. Barnes, architect, Choumert-grove, Peckham :—

Hilling	£179 17 0
Nore	148 16 0
Hardiman & Watts (accepted)	128 0 0

For alterations, repairs, and decorations to premises at No. 52, Oxford-street, for the Medical Battery Company. Messrs. Benison & Bargman, architects, 16, Essex-street, Strand :—

Colls & Son	£1,417 0 0!
McLachlan & Sons	1,324 0 0
E. Trigge	620 0 0
J. M. Macey & Son	540 0 0!

For a new disinfecting chamber, for the Bromley Local Board. Mr. Hugh S. Cregeen, surveyor :—

George Gill	£124 0 0
J. Taylor & Son	119 0 0
T. Crossley (accepted)	114 10 0

For alteration of premises in Albion-street, Leeds (lately occupied by the National Provincial Banking Company), for Messrs. Ford & Warren, solicitors. Mr. Thos. Winn, architect, 18, Park-lane, Leeds. Quantities by the architect :—

Excavator's, Bricklayer's, Mason's, Joiner's, and Carpenter's Work.

John Hall Thorp, Leeds	£598 15 0
Franks & Evans, Leeds	585 18 0
Nicholson & Son, Leeds	584 0 0
Irwin & Co. (accepted)	550 0 0

Plumber and Glazier's Work.

Thompson Bros., Leeds	95 0 0
Lindley, Leeds (accepted)	91 0 0

Plastering.

Franks & Evans (accepted)	49 10 6

For new laboratory, Reading School. Messrs. Chas. Smith & Sons, architects :—

Wornham	£523 18 0
Higgs & Son	489 0 0
Woodruff	487 0 0
Simmonds	472 0 0
Bottrill	470 0 0

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J. S. L. (thanks: shall be glad to hear further).—H. R.—"Dover Camp" (we thoroughly sympathise with the sentiment, but it is out of our proper line).—"A Stone-carver" (architects who are worth anything will find out that for themselves. Your letter is hardly one we could publish).—H. H.—J. C. P.—C. B.—W. & Sons.—W. L. E. (amounts of tenders must be sent if publication is desired).—P. P. T. E. K. (cancelled: having appeared elsewhere).

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